



Census Studies No. 1

SIZE AND SEX COMPOSITION
OF POPULATION IN INDIA

SIZE AND SEX COMPOSITION OF POPULATION IN INDIA 1901-1961

P. B. DESAI

*Demographic Research Centre
Institute of Economic Growth, Delhi*



ASIA PUBLISHING HOUSE

BOMBAY — CALCUTTA — NEW DELHI — MADRAS

LUCKNOW — BANGALORE — LONDON — NEW YORK

© Institute of Economic Growth, 1969

Prasannavadan B. Desai (1924)

जोधपुर : राज्य ग्रन्थालय

संख्या 83403 विषय Sociology.

क्रमांक संख्या Y: 5.2.1 N.E.J. No.

PRINTED IN INDIA

PRINTED AT THE NATIONAL PRINTING WORKS, 10-DARYAGANJ, DELHI-6,
AND PUBLISHED BY P.S. JAYASINGHE, ASIA PUBLISHING HOUSE, BOMBAY

PREFACE

The present monograph is the first of a series of studies based primarily on the census data that the Demographic Research Centre has undertaken. It deals with the two basic demographic variables, namely, the size and sex composition of the population. It was undertaken in view of the great interest that the results of the 1961 Census had evoked. It became then a matter of concern that, while the population had increased at a rapid rate during the decade, there was also a reassertion of the trend of decrease in the female proportion of the country's population.

This decrease could theoretically be traced to two factors—a change in the sex composition of births and a change in the sex differential of mortality. Reliable data on these two questions are difficult to obtain. The study, therefore, concentrates on the readily available data of the censuses from 1901 to 1961. These data are examined with a view to highlighting the segments of population where the incidence of sex disproportion is particularly high. It deals, thus, with the national population, its rural and urban segments, and also with the population in towns of different sizes. For all these segments, the data of the seven censuses are examined and a comparative analysis of the incidence of sex disproportion has been undertaken. Furthermore, reference is made to the population of cities, individually, in greater detail with a view to finding out co-variation of the sex ratio with other pertinent variables.

In conducting this study, Mr. P. B. Desai has received valuable assistance from his colleague Dr. Ashish Bose in all its aspects, while Mr. Vir Narain and Mr. Chaman Singh assisted him in the compilation and tabulation of the data.

*Institute of Economic Growth
Delli*

P.N. DHAR
Director

CHAPTER ONE

INDIAN UNION, CENSUS ZONES AND STATES

The present study focuses attention on the behaviour of the two most basic among the demographic variables—the size of population and its sex ratio. These variables are too familiar to need any explanation of the significance of their temporal variations. It may be useful, however, to note that the size of population is denoted by the total number of persons in the population, and sex ratio is the basic index commonly used for characterizing the composition of a population. As such, the ratio serves to indicate relative proportions of the male and female components of a given population. It is conventionally defined either as a number of females per thousand males or a number of males per thousand females. In the present study we will follow the practice of the Indian censuses and use the former of these two definitions.

Variation in population sex ratio is a function of three sets of sex differentials. These differentials relate to the three components of change in the size of population, namely, births, deaths and migration. For explaining either the temporal or the spatial variation in population sex ratio, it is useful to have detailed data on sex ratio at birth, sex differentials in mortality and sex pattern of migration. For the population we are here concerned with, reliable data about any of these factors are not available in requisite detail. It is not possible, therefore, to explain fully the variations in sex ratio that have taken place in India in the course of the last six census decades.

We propose, therefore, only to examine the census statistics of this period with a view to finding out the extent to which the variations in the size and sex ratio of the population of the Indian Union are reflected in its different segments obtained by using classifications of the national population according to relevant population characteristics. In this connection, it is fortunate that sex break-down is the most common feature of tabulation of data in all the censuses. Our primary emphasis will, however, be on the distribution of population according to residence. Accordingly,

we begin this examination by noting the variations relating to the national population and proceed against this background to consider corresponding variations in different geographical areas, including census zones and individual states of the Union, in rural and urban sectors and in the segments of the urban population based on the classification of towns and cities according to size. Further, we will consider in greater detail the size and sex ratios of individual cities, with a population of 100,000 or more in 1961.

Such a comparative analysis will help in identifying the segments of population where the disproportion between the sexes is relatively much more pronounced. The analysis will also suggest areas of further research into the trends of mortality and internal migration.

National Population

For the national population, as well as its segments specified above, we will use the figures of the seven censuses from 1901 to 1961 that are readily available in the latest publications of the 1961 census. In respect of the national population, we may note at the outset that the content of foreign born persons therein has been extremely small in all the censuses. It is also clear that the rate of out-migration for the country as a whole too has been insignificant all through the period and so the sex composition of net migration could not have had any significant impact on the trend of the sex ratio of the total population.

For this sixty-year period taken as a whole, the total population records a considerable increase. Of the six decades, 1911-21 was the only one which registered an actual decrease of population. This was caused by severe famines and epidemics of the years preceding the census, of which the most devastating was the nationwide influenza epidemic of 1918. Each of the succeeding decades recorded an increase in population with the rate of growth tending to accelerate. The decennial rate of growth was 21.5 per cent for 1951-61 as compared to 11.1 per cent for 1921-31. The rate of growth was not the same for males and females in any of the decades. These sex-differentials in growth rate and the variations in the sex ratios are given in Table 1.

The decline of 1911-21 was wholly accounted for by the female component. The male population recorded in fact a small

Table 1

Growth of the national population and variation in its sex ratio, 1901-61

	Males		Females		Both		
	Persons (—000s)	% vari- ation	Persons (—000s)	% vari- ation	Persons (—000s)	% vari- ation	Sex ratio
1901	120,911	—	117,485	—	238,396	—	972
1911	128,385	+ 6.18	123,708	+ 5.30	252,093	+ 5.73	964
1921	128,546	+ 0.13	122,775	— 0.75	251,321	— 0.31	955
1931	143,055	+11.29	135,922	+10.71	278,977	+11.01	950
1941	163,825	+14.52	154,835	+13.91	318,660	+14.22	945
1951	185,528	+13.25	175,560	+13.39	361,088	+13.31	946
1961	226,293	+21.97	212,942	+21.29	439,235	+21.50	941

increase. Further, the rate of growth of the male population was clearly in excess of the corresponding rate for females in all decades excepting 1941-51. The gap between the per cent rates of growth was comparatively larger in the first two decades. It was reduced in 1921-31 and was reversed in 1941-51 but it re-appeared to be somewhat larger in 1951-61 than in either the 1921-31 or the 1931-41 decade. The total population increased by 84.2 per cent over the period as a whole, the male component, by 87.2 per cent and the female, by 81.2 per cent. The proportion of females was consequently reduced from 49.3 per cent in 1901 to 48.5 per cent in 1961.

Reflecting these differentials, sex ratio declined over the period from 972 in 1901 to 941 in 1961. The decline was comparatively larger during the first two decades. Between 1901 and 1921, the ratio declined by 17 points as compared to a reduction of 10 points in the course of the following two decades and a subsequent reduction of 5 points during 1951-61, or as compared to the decline of 14 points between 1921 and 1961.

Comparative Sex Ratios of Other Countries

Sex disproportion, as indicated by the deviation of sex ratio from numerical equality between the sexes in a population (i.e. sex ratio at 1000), is the most common feature of national populations the world over. The deviation, however, varies from country to country in both nature and extent. It may be interesting, therefore, to consider how the 1961 Indian population com-

pared in this respect with other countries. For this purpose we have picked out, from the 1962 United Nations Demographic Year Book, countries with a population of over ten million persons each and calculated their sex ratios as given in Table 2.

Among the 42 countries with a population of more than ten million each, listed in the Year Book, sex breakdowns are not available for any year since 1940 for four countries, namely, Algeria, Brazil, Burma and Morocco, and so they are not included in this table. All the remaining 38 countries exhibit sex disproportion. The range of variation of sex ratio extends from 901 for Pakistan to 1254 for Ukraine SSR. The disproportion in the case of 25 countries represents excess of females in the population, while for the remaining 13 it is indicative of an excess of males. The maximum deficiency of females comes to 99 per thousand males for Pakistan, while the excess of females amounts to as much as 254, at the maximum, for Ukraine SSR.

India is included, along with Mainland China and Pakistan, among the 13 countries showing female deficiency. For ten of these countries, the deficiency is smaller in extent than for India. Arranging the sex ratios of these 38 populations in the order of magnitude, it will be seen that India occupies the 36th position with only China and Pakistan left to follow. Alternatively, if we arrange these countries in the order of importance according to the size of deviation of the sex ratio from the unit ratio representing equality between the sexes, India is placed 13th; there are, thus, only 12, among these, 38 countries in whose case the extent of sex disproportion is larger than in India.

Census zones

According to the 1961 Census, there are five principal zones and a residual category comprising Andaman and Nicobar Islands, and Goa, Daman and Diu, together accounting for only about 0.20 per cent of the total population uniformly in all the censuses from 1901 to 1961. It will be in order, therefore, to confine attention here to the five zones. Our procedure will be to examine first the variation in the size of zonal populations and then take up the variation in their sex ratios for the period 1901-1961.

Decennial variations in population of different zones in terms of percentage increase or decrease are given in Table 3.

Table 2: Sex ratios of selected countries

Country	Year	Sex-ratio	Rank (size of sex ratio)	Rank (size of deviation from sex ratio at 1,000)
Africa				
Congo (Leopoldville)	1955-57	1060	10	12
Nigeria	1953	1046	15	19
South Africa	1960	1005	24	37
Sudan	1962	978	29	28
U.A.R.	1960	989	27	32
N.America				
Canada	1961	978	30	29
Mexico	1960	1005	25	36
U.S.A.	1960	1030	19	30
S.America				
Argentina	1961	972	32	27
Columbia	1951	1011	21	33
Peru	1961	1009	22	34
Asia				
China (Mainland)	1953	930	37	8
China (Taiwan)	1961	952	35	18
India	1961	941	36	13
Indonesia	1961	1028	20	26
Iran	1956	965	33	24
Japan	1960	1037	18	23
Korea (Republic)	1960	1038	17	22
Pakistan	1961	901	38	6
Philippines	1960	983	28	31
Thailand	1960	996	26	38
Turkey	1960	956	34	20
Vietnam (North)	1960	1070	7	9
Europe				
Czechoslovakia	1961	1050	14	17
France	1961	1056	12	15
W.Germany	1960	1120	4	4
E.Germany	1961	1211	2	2
Hungary	1961	1072	6	7
Italy	1960	1041	16	21
Netherlands	1961	1008	23	35
Poland	1960	1111	5	5
Romania	1956	1057	11	14
Spain	1960	1061	8	10
U.K.	1961	1061	9	11
Yugoslavia	1961	1053	13	16
U.S.S.R.	1961	1209	3	3
Ukraine S.S.R.	1959	1254	1	1
Oceania				
Australia	1960	978	31	30

Table 3: Per cent variation in population by zones, 1901-1961

	Northern	Central	Eastern	Western	Southern	Total
1901-11	-1.63	3.22	6.71	9.81	9.07	5.73
1911-21	0.18	-2.59	0.01	-0.80	1.88	-0.31
1921-31	11.73	8.03	11.41	14.27	11.79	11.01
1931-41	17.56	13.20	15.55	14.34	12.56	14.22
1941-51	9.53	10.89	11.39	19.06	16.48	13.31
1951-61	25.70	18.85	26.03	24.71	16.96	21.50

*States and Union Territories forming different zones: **Northern:** Jammu and Kashmir, Punjab, Rajasthan, Delhi and Himachal Pradesh; **Central:** Uttar Pradesh and Madhya Pradesh; **Eastern:** Bihar, Orissa, West Bengal, Assam, Manipur, Tripura, NEFA, Nagaland & Sikkim; **Western:** Gujarat, Maharashtra and Dadra and Nagar Haveli; **Southern:** Andhra Pradesh, Mysore, Kerala, Madras, Pondichery and Laccadive, Minicoy and Amindivi Islands.

Among the 30 different rates, representing variations for the six decades for each of the five zones, we have only three with a minus sign to indicate decline in population. The first relates to the 1901-11 decade, during which the population of the Northern zone decreased by 1.6 per cent in contrast to 5.7 per cent increase in the national population and varying rates of increases in other zonal populations. The other two declines were recorded in the case of the Central and Western zones for the next decade of 1911-21, in which the national population had registered a small decrease of 0.31 per cent. The decline was notably larger for the Central zone.

Each of the remaining four decades recorded an increase in population for each of the zones. In each zone, the highest rate of growth was registered during the 1951-61 decade; the range of variation of the zonal growth rate for this decade extended from 17.0 per cent for the Southern zone to 26.0 per cent for the Eastern zone. Compared to the growth rate of the preceding 1941-51 decade, the increase during 1951-61 for the Northern zone appears to be exceptionally large but it is notable that the Northern zone had experienced the smallest rate of growth in the preceding decade. Progressive acceleration of the process of population growth, since 1921 in particular, is revealed only for the

Western and Southern zones. For the other three zones this process was breached in the 1941-51 decade, for which the respective rates were lower than the corresponding rates for 1931-41.

It is interesting further to observe that the range of variation in the rate of growth between the zones differed from decade to decade. In terms of percentage points by which the minimum was smaller than the maximum zonal rate for a given decade, its extent was 11.4 at the highest in 1901-11. The range narrowed down considerably in the next decade but rose again rather sharply in 1941-51. The amount of disparity between zonal rates of population change thus kept on varying from decade to decade. But the overall rates of change in the national population too differed; the 1951-61 rate of population growth was nearly five times that of 1901-11 and was 50 per cent higher than the one of 1931-41. If we deflate the range by the overall rate of change for each decade, by taking, say, the ratio of the range of variation of the zonal rates to the overall rate, it does appear that the disparity was by far the largest in the exceptional decade of 1911-21. The ratio was 2.00 in 1901-11. After 1921, it had tended to decline; from 0.57 in 1921-31 it dropped to 0.35 in 1931-41. The 1941-51 decade recorded, however, a jump in this ratio to 0.72, to be followed by a somewhat larger decline to 0.42 in 1951-61. On the whole the disparity in the rate of growth between different zones had been reduced through the period considered as a whole.

The impact of variations of zonal growth rates on the zonal pattern of population distribution is indicated in Table 4 giving per cent shares of each zone in the national population for the different censuses of the period under consideration.

The pattern of distribution has maintained a broad similarity from census to census. The Central, Eastern and Southern zones claimed in each census roughly around one fourth each of the total population. Of the remaining two, the share of the Western zone tended to rise, while that of the Northern zone, to decline. Comparing the 1961 pattern of distribution with that of 1901, it will be seen that the share of the Central zone was reduced by 3.4 points and of the Northern zone by 0.4 points. The gains were of 1.7, 1.2 and 0.9 points for the Western, Eastern and Southern zones respectively. The order of importance was also slightly modified. The first place was occupied by the Eastern zone with a share of 25.9 per cent in 1961, but by the Central zone with a share of

Table 4: Per cent distribution of population by zones, 1901-61

	Northern	Central	Eastern	Western	Southern
1901	11.3	27.5	24.7	12.0	24.3
1911	10.5	16.8	25.0	12.4	25.1
1921	10.6	26.2	25.0	12.3	25.7
1931	10.6	25.6	25.1	12.7	25.8
1941	11.0	25.2	25.4	12.7	25.5
1951	10.6	24.8	24.9	13.4	26.1
1961	10.9	24.1	25.9	13.7	25.2

27.5 per cent in 1901. Between 1901 and 1961, the Southern zone improved its share from 24.3 per cent to 25.2 per cent and moved up from the third to the second position. The Central zone with a reduced share of 24.1 per cent was ranked third in 1961. The fourth and fifth places were occupied by the Western and Northern zones respectively in both 1901 and 1961.

Next we may consider the differentials in the decennial rates of growth between males and females.

Table 5: Difference in per cent rates of growth between male and female, population, 1901-1961

	Northern	Central	Eastern	Western	Southern	Total
1910-11	+1.96	+1.73	+0.94	+1.21	-0.17	+0.88
1911-21	+0.23	+0.81	+1.57	+1.21	+0.55	+0.88
1921-31	-1.08	+0.36	+2.13	+0.19	+0.24	+0.58
1931-41	-1.10	-0.17	+1.96	+0.05	+0.85	+0.61
1941-51	-1.45	-0.09	+0.69	+0.19	-0.25	-0.14
1951-61	+0.30	+0.54	+0.10	+0.90	+1.03	+0.68

The positive differential indicating the growth rate to be higher for males than for females is much more common than the differential of the opposite kind. This has been so for the Western and Eastern zones in all the different decades. The size of the differential, however, varied from decade to decade; the range of

variation extends for the Eastern zone from 2.1 points in 1921-31 to 0.1 points in 1951-61, while for the Western zone it extends from 1.2 points in both 1901-11 and 1911-21 to 0.05 points in 1931-41.

In respect of the other three zones the negative differential showing female rate of growth to be higher is encountered frequently. The female rate was higher in the Northern zone for three decades between 1921 and 1951, in the Central for two decades between 1931 and 1951 and in the Southern for the two decades, 1901-11 and 1941-51.

Over the period as a whole, the total population increased by 84.24 per cent, its male component by 87.16 per cent and the female component by 81.25 per cent, the sex differential being 5.91 points. Both the total growth rate and the size of sex differential varied from zone to zone. The growth rate is the highest for the Western zone at 111.30 per cent and the lowest for the Central zone at 62.04 per cent. The sex differential was positive for four of the five zones, the excess of the male over the female growth rate being 13.03 points at the highest for the Eastern zone, while for Northern zone the female rate registered a small excess of 1.41 points only.

We may now see how the sex differentials in the rate of growth are translated into variations of the sex ratio in different zones.

Table 6: Variation in sex ratios of zonal populations, 1901-1961

	Northern	Central	Eastern	Western	Southern	Total
1901	873	951	1010	970	1006	972
1911	856	935	1001	960	1008	964
1921	855	927	986	948	1002	955
1931	863	924	967	946	1000	950
1941	871	925	951	946	992	945
1951	883	926	945	944	995	946
1961	880	922	944	938	986	941

The trend of decline in sex ratio is quite generally shared by the zones. The continual decline brought down the ratio in the Eastern zone, from 1010 in 1901 to 944 in 1961. In the Western zone, the decline was absent only in 1931-41, while small increments were recorded by the Central zone in 1931-41 and 1941-51

and by the Southern zone in 1901-11 and 1941-51. In the Northern zone, the sex ratio declined during the first two decades, rose through the next three to record a small decline again in 1951-61. Here, the sex ratio was in fact somewhat higher in 1961 than in 1901. For the other zones, the extent of overall decline ranged from 66 points in the Eastern to 20 points in the Southern zone.

In 1901, the nature of sex disproportion was not the same for all the zones. There was an excess of females in the Eastern and Southern zones and an excess of males in the other three zones. In the Eastern zone, the excess of females persisted till 1911 and in the Southern till 1921. The 1931 ratio for the latter zone represented approximate equality between the sexes. The subsequent censuses reported excess of males invariably for all the zones. The 1961 sex ratio came in fact to represent the largest measure of female deficiency in the case of four out of the five zones, while in the remaining Northern zone the deficiency was the smallest in 1951 and only slightly greater than this in 1961. In 1961, the extent of female deficiency varied between the zones from 120 points in the Northern zone to only 14 points in the Southern zone.

The disparity between the levels of zonal sex ratios varied from census to census. However, from 1911 onwards, at each census the Southern zone recorded the highest and the Northern, the lowest sex ratio. The range between the lowest and the highest of the zonal ratios measured 137 points in 1901. It was enlarged to 152 in 1911 but since then it tended continually to narrow down, measuring 106 points in 1961.

Additionally, the following table compares for each census the sex ratios of individual zones with the sex ratio of the National population. The first set of figures expresses the differential between a zonal sex ratio and the sex ratio of the national population in terms of number of points by which the former is smaller than the latter. The second set expresses the former in terms of percentages of the latter.

It will be noticed that the sex ratio of the Western zone has from census to census maintained a position of proximity to the national sex ratio. Such a proximity was attained in 1941, and has since been maintained, by the Eastern zone; this was achieved by reduction of the differential from 38 points in 1901 to only 6 points in 1941. For the Northern zone the differential has been the largest

Table 7: Deviation of zonal sex ratios from the sex ratio of national population, 1901-1961

	Northern	Central	Eastern	Western	Southern
A. Deviation: No. of points					
1901	—99	—21	+38	—2	+34
1911	—108	—29	+37	—4	+44
1921	—100	—28	+31	—7	+47
1931	—87	—26	+17	—4	+50
1941	—74	—20	+6	+1	+47
1951	—63	—20	—1	—2	+49
1961	—61	—19	+3	—3	+45
B. Relatives: All India S.R. = 100					
1901	89.8	97.8	103.9	99.8	103.5
1911	88.8	97.0	103.8	99.6	104.6
1921	88.7	96.2	102.3	98.3	103.9
1931	90.8	97.3	101.8	99.6	105.3
1941	92.2	97.9	100.6	100.1	105.0
1951	93.3	97.9	99.9	99.8	105.2
1961	93.5	98.0	100.3	99.7	104.8

in all the census years but it will be seen that after an initial increase between 1901 and 1911 to 108 from 99 points, it has steadily declined to reach 61 points in 1961. Neither of the remaining two zones exhibits large variations; for the Central zone the sex ratio kept between 96 and 98 per cent and for the Southern zone around 105 per cent of the national ratio. In any case, the contrast between the Northern and the Southern zones has been conspicuously maintained through the entire period. In 1961, the female deficit for the Northern zone was larger than the deficit indicated by the National ratio by 61 points, while for the Southern zone, it was smaller by 45 points.

The States of the Union

We may now take up the smaller segments of population as represented by the political or administrative units of the Indian Union. Here we have fifteen states and also twelve Union territories. The Union territories are comparatively very small units; altogether they account for only about 2 per cent of the total population of the Union. We will consider here only the fifteen

If we exclude these two states, the range narrows down considerably; for these thirteen states it extends from 10.6 per cent of Bihar to 2.7 per cent of Assam.

Among the 15 states we have only the state of Jammu-Kashmir with a share in the National population of less than one per cent. Next, we have six states, each with a share in the range of one to five per cent, followed by another group of six states, each with a share in the range of five to ten per cent. There remain the two largest states, Bihar with a share just a little larger than ten per cent and U. P. with more than fifteen per cent of the national population.

It is interesting further to note that the relative positions occupied by the different states in the order of importance according to size of population has changed little over the period considered as a whole. Comparing the 1961 order with the corresponding arrangement of 1901, the two orders are found to be broadly similar. Eight states occupied the same positions in the order of importance in 1961 as they did in 1901. The remaining seven changed their positions. Notable changes in positions, among them, relate to Punjab and Gujarat. The former suffered a reduction in its share of the national population from 5.56 per cent in 1901 to 4.62 per cent in 1961 and moved down the order from the 8th to the 10th position, while the latter improved its share from 3.81 per cent to 4.70 per cent and moved up from the 12th to the 9th position.

The rate of population growth varied from state to state in each of the six decades of the period, as shown in Table 9.

The second decade, 1911-21, stands out as witnessing a decrease in the national population. The declining trend of the decade affected as many as nine of these fifteen states, the maximum decrease being 6.3 per cent for Rajasthan among these nine states. The remaining six states registered increase in population, which was 19.0 per cent, at the maximum, for Assam. Of the remaining five decades witnessing growth of population, the first one, 1901-11, recorded the smallest rate of increase. The increase was shared by 13 states, while the remaining two suffered a reduction in their population; the range between the maximum reduction and maximum increase extended from 9.96 per cent for Punjab to 16.73 per cent for Assam.

Each of the remaining four decades, from 1921 to 1961, recor-

Table 9: Per cent decennial variation of population in states

State	1901-11	1911-21	1921-31	1931-41	1941-51	1951-61
A.P.	12.49	—0.13	12.99	12.75	14.02	15.65
Assam	16.73	19.01	19.54	20.08	19.28	34.45
Bihar	3.67	—0.66	11.45	12.20	10.27	19.78
Gujarat	7.79	3.79	12.92	19.25	18.69	26.88
J-K	7.16	5.75	10.14	10.36	10.42	9.44
Kerala	11.75	9.16	21.85	16.04	22.82	24.76
M.P.	15.30	—1.38	11.39	12.34	8.67	24.17
Madras	8.57	3.47	8.52	11.91	14.66	11.85
Maharashtra	10.74	—2.91	14.91	11.99	19.27	23.60
Mysore	3.60	—1.09	9.38	11.09	19.36	21.57
Orissa	10.44	—1.94	11.94	10.22	6.38	19.82
Punjab	9.96	4.35	9.64	17.81	0.21	25.86
Rajasthan	6.70	—6.29	14.14	18.01	15.20	26.20
U.P.	—0.97	—3.08	6.66	13.57	11.82	16.66
W. Bengal	6.25	—2.91	8.14	22.93	13.22	32.79

ded an increase in population which was shared by all the states without any exception whatever. Among them, the decennial rate of increase in the national population was the largest for the final decade of 1951-61. The range of inter-state variation in growth rate was about the same in 1921-31 and 1931-41. It was extended in the next decade of 1941-51 but here too if we leave out the exceptionally low growth rate of Punjab, it narrows down considerably. The range appears to be larger still in the last decade of 1951-61 but it is notable that the overall rate of growth is much greater as compared to the preceding decades and so the amount of inter-state variation cannot be taken to have been higher. If we compare the first with the final decade, it appears on the other hand that the amount of inter-state variation in growth rate was much smaller in the latter decade; the value of co-efficient of varia-

tion comes to 0.26 for the latter decade as against 0.95 for the first decade.

If we take the period as a whole, the national population was larger by 85.9 per cent in 1961 as compared to that of 1901. The corresponding rate varied between the states from 51.7 per cent for U.P. to 219.8 per cent for Assam. The growth rate was lower than that of the national population (representing the weighted mean of the state growth rates) for seven states and higher for the remaining eight. These differentials in growth rate did not materially alter the arrangement of the states in the order of importance but the shares of individual states did record some changes. Among the former seven states, the largest reduction in the share of the national population accrued to U.P., which accounted for 16.8 per cent of the total population in 1961 as compared to 20.4 per cent in 1901. Outstanding gains accrued to Kerala and Assam, the former increasing its share from 2.68 per cent to 3.85 per cent and the latter from 1.56 per cent to 2.70 per cent.

Comparing further the growth rates for the two sex components of population in each state, a majority of states exhibited the male rate to be larger than the female rate in each decade excepting the 1941-51. In the latter decade, as many as ten states revealed the female rate to be in excess of the male rate. In contrast, the number of the states revealing the male rate to be higher was 11 in the first three as also in the last decade of the period. In the remaining decade of 1931-41, the male rate was higher in nine states and lower than the female rate in the other six states. These differentials are reflected in the variations of the state sex ratios as shown in Table 10.

Punjab had consistently the smallest sex ratio at each of the seven censuses represented in the above table. At the other end, the highest sex ratio was claimed by Bihar in 1901, by Orissa in the four censuses from 1911 to 1941 and by Kerala in 1951 and 1961. The minimum level reported invariably for Punjab declined considerably between 1901 and 1911 but it registered a progressive rise in the course of the next five decades surpassing the initial 1901 level in 1941. The maximum level tended to rise during the first two decades and thence to decline in the course of the next four decades. The range of inter-state variation in sex ratio, as measured by the difference between the maximum and minimum levels, extended, therefore, from 206 points in 1901

Table 10: Sex ratios of the states populations, 1901-1961

States	1901	1911	1921	1931	1941	1951	1961
A. P.	985	992	993	987	980	986	981
Assam	933	927	908	886	886	877	876
Bihar	1054	1044	1016	994	996	990	994
Gujarat	954	946	944	945	941	952	940
J.-K.	882	876	870	865	969	873	878
Kerala	1004	1008	1011	1022	1027	1028	1022
M. P.	990	986	974	973	970	967	953
Madras	1044	1042	1029	1027	1012	1007	992
Maharashtra	978	966	950	947	959	941	936
Mysore	983	981	969	965	960	966	959
Orissa	1037	1056	1086	1067	1053	1022	1001
Punjab	848	807	821	830	850	858	864
Rajasthan	905	908	896	907	906	921	908
U. P.	937	915	909	904	907	910	909
W. Bengal	945	925	905	890	852	865	878

to 265 points in 1921 and was subsequently reduced progressively to reach 158 points in 1961. This suggests that between 1921 and 1961 the amount of inter-state variation in sex ratio had tended to be reduced.

Next, we may refer to the nature of sex disproportion as indicated by varying sex ratios of the state populations for these seven censuses. The predominance of female deficiency has been present all through and it has tended to be even more widespread over the period considered as a whole. At each census a majority of the states revealed female deficiency. Deficiency of males, indicated by the sex ratio being higher than 1000, was exhibited by the same four states—Bihar, Orissa, Madras and Kerala, in the first three censuses of 1901, 1911 and 1921. Bihar, among these four states, reported female deficiency in 1931 for the first time and repeated it in all the subsequent censuses. Then Madras

joined the majority of states reporting female deficiency in the final census of 1961. Thus there remain only the two states of Orissa and Kerala, in whose case each of the seven censuses revealed an excess of females. Through the period, the behaviour of sex ratio was not quite the same for these two states. In Orissa the female excess tended to increase between 1901 and 1921 and to decrease thereafter with the result that it came to be very nominal in 1961. In Kerala, on the other hand, the excess of females tended steadily to rise, the ratio moving up from only 1004 in 1901 to 1028 in 1951. In the last decade it came down, however, to 1022, indicating some reduction in sex disproportion.

Comparing the sex ratios of the first and final censuses of the period, we find that sex disproportion had been reduced only in the case of five states. For the remaining ten states, it was larger in 1961 as compared to 1901. Among the former five, female excess was almost eliminated in the case of Orissa; excess of females was replaced by a small excess of males in Madras and Bihar; while the female deficiency was reduced in the case of Punjab and Rajasthan. Among the other ten states, Kerala is the only state with excess of females, which was accentuated between 1901 and 1961. The remaining states witnessed varying degrees of accentuation of their respective female deficit; among them, the decline in ratio was nominal for Jammu-Kashmir and Andhra Pradesh, and quite substantial for West Bengal and Assam.

We may further compare the behaviour of sex ratios of individual states with that of the sex ratio of the national population. The latter exhibited a declining trend through the period, excepting for an insubstantial reversal of the trend in 1941-51. From decade to decade, the direction of change was the same (as that of the national sex ratio) in the case of only one of the fifteen states, namely, Mysore. For three others, Madras, Madhya Pradesh and Assam, the only difference was the absence of 1941-51 reversal of the trend, so that the declining trend in their case may be said to have been even more continuous. For each of the other states the direction of change diverged from the national trend more often.

As for the relative extent of variation in state sex ratios, it may be useful to consider first the changes in the two phases of the period 1901-21 and 1921-61. During the first phase the national ratio declined by 17 points from 972 to 955. Three of the states—

Orissa, Andhra Pradesh and Kerala, recorded contrasting increases of 49, 8 and 7 points respectively. For half of the other twelve states, the decline was greater in extent than that of the general ratio, West Bengal among them recording the maximum decline of 40 points. Among the remaining six, the decline at the minimum amounted to 9 points for Rajasthan, which was preceded in the order by Gujarat with a reduction of 10 points.

In the course of the next phase extending from 1921 to 1961 the national ratio decreased by only 14 points. Four states, in contrast, improved their ratio. Only for Kerala among them, the improvement was in continuation of the increasing trend of the preceding phase. The maximum increase of 43 points accrued in this phase to Punjab, which had witnessed a reduction of 27 points in the first phase. For U.P., the ratio was the same at the beginning and the close of the phase.

There thus remain ten states to share the general declining trend. For six of them, the decline was larger than that of the national ratio. At the maximum the reduction amounted to 85 points for Orissa, which had notably recorded the largest increase during the first phase. In Maharashtra, among the remaining four, the decline was of the same amount as of the national ratio and for Gujarat, the decrease was the smallest. The range of variation of the changes in state sex ratios was much more extensive in the second phase as compared to the first.

If we consider the overall changes that took place in the course of the period as a whole, the national sex ratio decreased by 31 points, while the ratios of the three states of Kerala, Punjab and Rajasthan increased by 18, 16 and 3 points respectively. Among the states exhibiting the declining trend, major reductions amounted to 67, 60 and 57 points for West Bengal, Bihar and Assam respectively, while the decline was nominal for Jammu-Kashmir and also for Andhra Pradesh.

Alternatively, the following table presents the state sex ratios in terms of percentages of the national sex ratio for the different census years.

It will be seen that the range of variation between the relatives expressing the state ratios tended to increase upto 1921 and thereafter to decline. The range extended from 21.2 points in 1901 to 27.7 points in 1921 and was shortened continually thereafter to reach 21.5 points in 1941 and 16.8 points in 1961.

Table 11: State sex ratio relatives (sex ratio of National population=100)

States	1901	1911	1921	1931	1941	1951	1961
A. P.	101.3	102.9	104.0	103.9	103.7	104.2	104.3
Assam	96.0	96.2	95.1	93.3	93.8	92.7	93.1
Bihar	108.4	108.3	106.4	104.6	105.4	104.7	105.6
Gujarat	98.1	98.1	98.8	99.5	99.6	100.6	99.9
J-K	90.7	90.9	91.1	91.1	92.0	92.3	93.3
Kerala	103.3	104.6	105.9	107.6	108.7	108.7	108.6
M. P.	101.9	102.3	102.0	102.4	102.6	102.2	101.3
Madras	107.4	108.1	107.7	108.1	107.1	106.4	105.4
Maharashtra	100.6	100.2	99.5	99.7	100.4	99.5	99.5
Mysore	101.1	101.8	101.5	101.6	101.6	102.1	101.9
Orissa	106.7	109.5	113.7	112.3	111.4	108.0	106.4
Punjab	87.2	83.7	86.0	87.4	89.9	90.7	91.8
Rajasthan	93.1	94.2	93.8	95.5	95.9	97.4	96.5
U. P.	96.4	94.9	95.2	95.2	96.0	96.2	96.6
W. Bengal	97.2	96.0	94.8	93.7	90.2	91.4	93.3

Correspondingly, the mean deviation increased from 4.80 in 1901 to 5.86 in 1921 and declined thereafter to 4.61 in 1961. Compared to 1901, the variation of state sex ratios thus was smaller in amount in 1961.

Considering the position of individual states, it will be seen that the ratios for as many as ten states were closer to the national ratio in 1961 than in 1901. Among them, the deviation from the national ratio was reduced for Punjab, at the maximum, by 4.6 points; for Rajasthan, by 3.4 points; for Bihar, by 2.8 points; for Jammu-Kashmir, by 2.6 points; and for Madras, by 2.0 points.

For the remaining five states, the deviation had increased. Kerala led these states with an increase in deviation of 5.3 points. The other states were West Bengal with an increase of 3.9 points, Andhra Pradesh of 3.0 points, Assam of 2.9 points, and

Mysore of 0.8 points only. In 1961, sex ratios of eight states were smaller than the national ratio and of the remaining seven, larger. Closest to the national ratio was that of Gujarat; that of Maharashtra, in the next place, was smaller but only by less than one per cent. Including these two, we have seven states whose ratios lay in the range of 95 to 105 per cent of the National ratio. The four states whose ratios were higher by more than 5 per cent are Bihar and Orissa in the east, and Kerala and Madras in the extreme south. The remaining four states with ratios smaller by more than 5 per cent are Punjab and Jammu-Kashmir in the extreme north, and West Bengal and Assam in the east.

CHAPTER TWO

RURAL AND URBAN SECTORS

The basis of dividing the population into segments for comparative analysis of the behaviour of the two variables under consideration is the character of residence. The most common distinction is made here between rural and urban residence. The latter is sub-divided into six classes of towns according to size of population. We will base this analysis on the latest data provided by the 1961 Census. These data relate to the seven censuses of the period under consideration and are available separately for the existing states.

The break-up between the rural and urban sectors is according to the definition adopted in each individual census. Definitional changes have been made from census to census but, as Appendix A will indicate, they do not materially affect inter-census comparability upto 1951. Comparison is difficult between 1951 and 1961, particularly in respect of IV, V and VI classes of towns, and we will indicate at relevant points in our discussion the implications of the 1961 definitional changes for our findings.

As hitherto, we will deal with the behaviour of sex ratio as an aspect of population growth and consider in turn both the process of growth and the variation in sex ratio. We first take up the national population and then proceed to the data of individual states. The analysis is presented in two parts. The first part, presented in this chapter, deals with the rural and urban sectors. The second part, in the next chapter, will discuss the six size classes of towns comprising the urban sector.

National Population

In 1901, the urban sector accounted for less than 11 per cent of the national population. Since then it has tended to expand at a faster rate as compared to the rural sector. Consequently, its share in the national population has kept on increasing. The relevant rates of growth are given in the following table:

Table 12: Variation in male, female and total population in rural and urban areas, 1901-1961

Year	Rural				Urban			
	Persons (—000)	% of total	% increase or decrease		Persons (—000)	% of total	% increase or decrease	
			Male	Female			Male	Female
1901	212,544	89.16	—	—	25,852	10.84	—	—
1911	226,151	89.71	+ 6.66	+ 6.14	25,942	10.29	+ 2.37	— 1.88
1921	223,235	88.83	— 1.05	— 1.54	28,086	11.17	+ 9.80	+ 6.50
1931	245,521	88.01	+10.17	+ 9.79	33,456	11.99	+19.63	+18.52
1941	274,507	86.14	+11.90	+11.71	44,153	13.86	+32.50	+31.34
1951	298,644	82.71	+ 8.76	+ 8.82	62,444	17.29	+39.23	+44.07
1961	360,298	82.03	+20.77	+20.52	78,997	17.97	+27.43	+25.23
		100.00				100.00		

10.14

The rate of population growth was higher in urban areas than in rural areas in each of the six decades, except the first. In the first decade, the urban population increased but by only 0.35 per cent, as against an increase of 6.4 per cent in the rural population; and so the proportion urban in the total population decreased by about 5 per cent. This relatively much slower growth of the urban sector is attributed mainly to the epidemic of plague, which led to out-migration on a considerable scale from urban to rural areas during the years preceding the 1911 census.

The demographic process of urbanization, as defined by the increasing trend of urban proportion in the total population, can be said to have continually operated through the next five decades from 1911 to 1961. Its rate varied from decade to decade. The increase in urban proportion amounted to 8.6 per cent in 1911-21 and 7.3 per cent in 1921-31. In the former decade, it was associated with a net decrease in the total population. The urban population increased during the decade by 8.3 per cent but the rural decreased by 1.3 per cent and the total population by 0.3 per cent. In the latter decade (1921-31), urban population increased by over 19.1 per cent and the rural by nearly 10.0 per cent and so the per cent increase in urban proportion was in fact somewhat smaller as compared to that of the former decade. ✓

The next two decades witnessed a considerable acceleration of the urbanization process. The urban proportion rose by 15.6 per cent in 1931-41 and by 24.8 per cent in 1941-51. During the final decade its pace appears, however, to have been much smaller. The increase in urban proportion during 1951-61 came only to 3.9 per cent, a rate which is the lowest of the decennial rates for the period of continual urbanization, 1911 to 1961. Here, the definitional changes introduced by the 1961 census have to be taken into consideration. If we do so and apply the 1951 criteria for classification of places as urban to the 1961 census returns,* the urban proportion comes to 19.05 per cent instead of 17.97

* 1961 population of some 78 places, which were classified as urban in 1951 but not in 1961, is not available and so is not taken into consideration in adjustment. If we remove them from the 1951 urban classification and recalculate the relevant percentages, the position is slightly modified. The urban population accordingly rises by 34.81 per cent from 62,067,007 in 1951 to 83,674,063 in 1961, and the proportion of the urban population in the total increases by 10.82 per cent from 17.19 per cent in 1951 to 19.05 per cent in 1961.

per cent; this adjustment reveals the increase in the population to be of the order of 10.2 per cent. Thus, while the rate of urbanization had declined during 1951-61, it was still higher than the corresponding rates prevailing prior to the acceleration of the process, which had characterised the preceding two decades from 1931 to 1951.

During the sixty year period taken as a whole, the population of India increased by 84 per cent, of its rural sector by 70 per cent and of its urban by 206 per cent. The urban proportion consequently rose by 66 per cent, from 10.84 per cent in 1901 to 17.97 per cent in 1961.

Sex differential in growth rate has been a continuing feature in both urban and rural areas all through the above noted process of population growth. The differential in growth rate in the favour of males has been larger in urban areas as compared to the rural almost all through the period. The excess of the male over the female rate amounted in the rural sector to only 0.52 points in 1901-11. Subsequently the excess was reduced and was replaced by an excess of the female over the male rate, measuring 0.06 points in 1941-51. In the final decade, the male excess reappeared and amounted to 0.25 points.

The corresponding figure for the urban areas was 4.5 points in 1901-11. It exhibited a similar tendency to decline upto 1931-41 and the declining trend was in fact sharply reversed in 1941-51, when the female rate exceeded the male rate by 4.84 points. But the differential in the favour of males reappeared in 1951-61.

Thus, from decade to decade the increase in population was shared unequally between males and females. The inequality was larger in extent for the urban areas. During the first decade, the overall increase of over 5 per cent in the national population was shared by rural males, rural females and also urban males but the females in the urban areas registered an actual decline. If we consider the urban sector alone, the female population declined by 1.88 per cent, while its male counterpart increased by 2.37 per cent, so that there was an increase of only 0.35 per cent in the total urban population. In each subsequent decade, the females shared with the males the increase in urban population. Their share in the increase in the population had in fact improved progressively from 37 per cent in 1911-21 to 48.3 per cent in 1941-51. In 1951-61 it again decreased to 44.2 per cent.

Taking the two phases of the period separately, it will be seen that during the first phase of 1901-21, the female share in the urban population increase was only 24.8 per cent, while in the second phase of 1921-61, it came to 45.8 per cent and in the period, as a whole, to 44.9 per cent. Comparative figures for the rural sector are 44.3 per cent for the first phase, 48.8 per cent for the second and 48.5 per cent for the period as a whole.

Thus conditioned by the continuing disparity between the rural and urban sex differentials in growth rate, the behaviour of sex ratio has been markedly different between the rural and urban sectors. This is evident from Table 13 giving sex ratios of the two sectors in the different census years of the period.

The declining trend in sex ratio appears to have been more continuous for the rural sector but the extent of decline was much smaller, as compared to that of the urban sex ratio, in each decade, excepting 1941-51, when the latter registered an increase. Further, the amount of decrease in rural sex ratio tended to decline from decade to decade till its absence in 1941-51, and the 1951-61 reassertion of the decrease was not substantial.

The urban sex ratio decreased continually upto 1941 and the amount of decrease tended strongly to be reduced over these four decades. The 1941-51 decade registered in contrast a substantial increase in the ratio, but the reassertion of the declining trend in the final decade eliminated more than half of that increase.

The difference between the rural and urban sex ratios increased progressively upto 1951. The major increases were, however, recorded in the first two decades, with the difference mounting up by 55 points from 69 in 1901 to 124 in 1921. The subsequent increases were smaller in amount, carrying the latter figure to only 134 in 1941. Then followed the reversal which reduced the difference to 95 in 1951, followed in turn by an increase in the difference to 118 in 1961.

In any case, it will be seen that the rural ratio, subjected to continual decline during the period, was smaller in 1961 only by 1.6 per cent than its 1901 level. The urban ratio was, on the other hand, smaller by 7.1 per cent in spite of the 1941-51 reversal of its declining trend. At the lowest it had in 1941 reached 91.3 per cent of its 1901 level.

Table 13: Variation in sex ratio—rural and urban populations, 1901-1961

Year	Sex ratio		Variation in Sex ratio				Index of Sex ratio		
	Total population	Rural	Urban	Rural minus Urban	Rural	Urban	Rural minus Urban	Rural	Urban
1901	972	979	910	69	—	—	—	100.0	100.0
1911	964	975	872	103	—4	—38	+34	99.6	95.8
1921	955	970	846	124	—5	—26	+21	99.1	93.0
1931	950	966	838	128	—4	—8	+4	98.7	92.1
1941	945	965	831	134	—1	—7	+6	98.6	91.3
1951	946	965	860	105	0	+29	—29	98.6	94.5
1961	941	963	845	118	—2	—15	+13	98.4	92.9

State Populations

Comparative per cent rates of variation in population of rural and urban sectors in each state for each of the six decades under consideration are given in Appendix B—4. It will be seen that in general the urban rate of growth has been larger than the rural. The first decade was, however, an exception. As noted earlier, in that decade the urban growth rate was a mere fraction of the rural rate and consequently the urban proportion had recorded a decline of over 5 per cent. The differential growth in the favour of the rural population was shared by nine of the fifteen states, while in the case of the remaining six the urban rate was higher; among them the small state of Jammu-Kashmir recorded an exceptionally large differential.

Of the other five decades, the middle three registered the urban rate to be larger for all states without any exception; in the first of these decades the general trend of increasing urban proportion was not shared by one and in the final, by five states. The exceptional excess of the rural over the urban rate was reported in 1911-21 for Jammu-Kashmir and in 1951-61 for Gujarat, Maharashtra, Mysore, Rajasthan and Uttar Pradesh. In the case of the latter decade, if we calculate the rates of growth after adjusting for the 1961 change in definition of 'urban', the differential in the favour of the rural sector is obtained only in the case of one state, namely Rajasthan.

The resulting changes in the proportion of urban population for different states are given Table 14:

Confining attention to the five decades of continual urbanization (1911-1961), it will be seen that the highest rate of urbanization was recorded for the country as a whole in 1941-51. This was true of seven states, namely, Maharashtra, Mysore, Andhra Pradesh, Punjab, Kerala, Madras, and Rajasthan; in the first four of these states the peak represented a larger degree of increase in urban proportion than for the national population. The preceding decade recorded the peak in four states, Bihar, West Bengal, Gujarat and Uttar Pradesh, the peak being smaller than the national rate of urbanization in the case only of Uttar Pradesh. Of the remaining states the highest of the five decennial rates of urbanization was registered in 1921-31 for Madhya Pradesh and in 1951-61 for the three states of Assam, Orissa and Jammu-Kashmir.

It will also be seen that inter-state variation in the rate of urbani-

Table 14: Per cent decennial variation in urban proportion in different states, 1901-1961

States	1901-11	1911-21	1921-31	1931-41	1941-51	1951-61	1951-61 Adjusted
A. P.	4.56	1.19	9.01	20.66	29.71	0.11	7.98
Assam	5.13	13.82	9.29	8.82	39.64	65.38	65.38
Bihar	— 5.22	8.66	9.66	40.97	5.78	24.52	25.70
Gujarat	—13.79	4.68	1.74	16.05	14.46	— 5.36	3.78
J-K	57.82	— 5.72	7.79	10.25	7.09	18.58	18.58
Kerala	3.23	18.94	10.42	12.45	24.35	12.09	16.25
M. P.	—22.77	12.43	23.83	5.48	22.53	18.89	22.63
Madras	6.50	5.18	13.69	9.32	23.60	9.61	11.13
Maharashtra	— 8.80	22.27	0.54	13.49	36.19	— 1.84	7.59
Mysore	— 7.96	19.03	11.19	10.72	34.48	— 2.70	6.01
Orissa	— 2.02	4.13	0.79	18.11	35.33	55.67	55.67
Punjab	— 7.23	2.75	15.89	15.56	26.67	5.95	7.63
Rajasthan	—10.76	6.62	2.72	3.74	21.15	—12.00	— 0.38
U. P.	— 8.12	3.83	5.76	10.90	9.91	— 5.79	7.70
W. Bengal	6.97	10.42	6.32	33.22	17.00	2.39	2.39
India	— 5.07	8.57	7.34	15.60	24.75	3.93	10.18

zation was particularly large in 1951-61. The range of variation was 28 points in 1911-21 and 24 points in 1921-31; it was extended to 37 points in 1931-41 and was reduced again to 34 points in 1941-51. The national rate, however, tended to increase sharply between 1921 and 1951, so that the ratio of the range to the national rate, roughly indicative of the amount of variation between the states, was reduced from 3.17 in 1921-31 to only 1.37 in 1941-51. The process of urbanization in effect was much more general in the latter decade than in any of the preceding ones. This trend toward generalisation of the process was reversed during 1951-61. In that decade the rate of urbanization for the country as a whole was much smaller but the range of its inter-state variation was

much larger. The comparative position of the decade is not materially modified even if we adjust the rates for the 1961 changes in the definition of urban areas. The urbanization process appears thus to have displayed a good deal of selectivity as between the states during 1951-61.

In any case, during the period taken as a whole the urban proportion in the total population of India increased by 66 per cent.. The corresponding increases varied among the states from only about 8 per cent for Rajasthan to 229 per cent for Assam. In five other states it had more than doubled, while for three more it was greater than at the national level. Among the remaining six states, the increase was nominal for Rajasthan, Gujarat and Uttar Pradesh. The general impression is unavoidable that the process operated during the period in quite a diffused manner.

We may further refer to the variation in the degree of urbanization as between different states in selected census years as shown below :

Table 15: Percentage of population in urban areas for different states

State	1901	1921	1951	1961
A. P.	9.65	10.21	17.42	17.44
Assam	2.34	2.80	4.65	7.69
Bihar	4.02	4.14	6.77	8.43
Gujarat	22.33	20.15	27.23	25.77
J-K	7.42	11.04	14.05	16.66
Kerala	7.11	8.73	13.48	15.11
M. P.	8.65	7.51	12.02	14.29
Madras	14.15	15.85	24.35	26.69
Maharashtra	16.59	18.50	28.75	28.22
Mysore	12.56	13.76	22.95	22.33
Orissa	2.47	2.52	4.06	6.32
Punjab	11.75	11.20	19.00	20.13
Rajasthan	15.06	14.33	18.50	16.28
U. P.	11.09	10.58	13.64	12.85
W. Bengal	12.20	14.41	23.88	24.45
India	10.84	11.17	17.29	17.97

Between 1901 and 1961, the urban proportion had increased in all states. At the national level, it rose from 11 to 18 per cent. Among the states, its maximum value was 28.2 per cent for Maharashtra in 1961 and 22.3 per cent for Gujarat in 1901. The corresponding minimum values were 6.3 per cent for Orissa and 2.3

per cent for Assam. The range of inter-state variation measured 20.0 points in 1901 and 21.9 points in 1961. The mean of deviations of the state proportions from the national proportion varied from 4.22 points in 1901 to 4.12, 6.41 and 5.76 points in 1921, 1951 and 1961 respectively. The ratio of the mean to the national proportion was, however, reduced from 0.39 in 1901 to 0.37 in 1921 and again from 0.37 in 1951 to 0.32 in 1961. This may be taken to indicate that the amount of inter-state variation in the degree of urbanization was a little smaller in 1961 as compared to preceding census years.

The arrangement of the states in the order of importance according to the size of urban proportion too was somewhat different in 1961 from that of 1901.

Table 16: States arranged according to urban proportion in 1901 and 1961

1901		1961	
States	% urban	% urban	States
1. Gujarat	22.3	28.2 (30.7)*	Maharashtra
2. Maharashtra	16.6	26.7 (27.1)	Madras
3. Rajasthan	15.1	25.8 (28.3)	Gujarat
4. Madras	14.2	24.5 (24.5)	W. Bengal
5. Mysore	12.6	22.3 (24.3)	Mysore
6. W. Bengal	12.2	20.1 (20.5)	Punjab
7. Punjab	11.8	17.4 (18.8)	A. P.
8. U. P.	11.1	16.3 (18.4)	Rajasthan
9. A. P.	9.7	16.2 (16.7)	J-K
10. M. P.	8.7	15.1 (15.7)	Kerala
11. J-K	7.4	14.3 (14.7)	M. P.
12. Kerala	7.1	12.9 (14.7)	U. P.
13. Bihar	4.0	8.4 (8.5)	Bihar
14. Orissa	2.5	6.7 (7.7)	Assam
15. Assam	2.3	6.3 (6.3)	Orissa

* The figures in brackets are corresponding percentages based on the data adjusted for the 1961 change in definition.

All the states, excepting Mysore and Bihar in the fifth and the thirteenth place respectively, change their positions in the order of importance between 1901 and 1961. The change is rather drastic in the case of Rajasthan and, to a lesser degree, also of U.P. The former moved down from the third to the eighth, and the latter

from the eighth to the twelfth place. It is interesting to add that the difference between the first two positions in the order is narrower in 1961 than in 1901.

We may now turn to consider the comparative behaviour of rural and urban sex ratios of the state populations. These ratios for the seven censuses of the period are given in Appendix B-5. In respect of the rural sector, it may be noted that the behaviour of its sex ratio bears in each state a broad similarity to that of the sex ratio of the respective total population. The reason is that the preponderance of the rural sector remains very substantial in spite of the relative growth of the urban sector during the period. The rural sector accounted for as much as 70 per cent of the population of Maharashtra in 1961, when this state had a higher proportion of its people in urban areas as compared to that of any state at the time or at any time in the past.

From the ratios in the appendix, it will be seen that it is extremely rare to find an excess of females in urban population. In the series of state urban sex ratios, we have only one set for the state of Madras, with its first entry for 1901 representing a ratio higher than 1000. Here too, it comes down from 1048 to 1032 in 1911 and to 1008 in 1921. Further reduction brought it down to 997 in 1931 and since then, it has not crossed the 1000 mark. The female deficiency in urban population has been commonly shared, thus, by all the states since 1931.

Turning to the rural sector, it will be seen that in 1901 the ratio exceeded 1000 in as many as five states, namely, Bihar, Madras, Orissa, Kerala and Maharashtra. The first four of these states continued to reveal female excess at each successive census of the period. In Maharashtra, it was not repeated. In 1911 and again in 1951, rural Maharashtra did, however, enjoy approximate numerical equality between the sexes.

For a comparative view of the relationship between the rural and urban series of state sex ratios, the following table presents for each census year the range of inter-state variation, the average of the deviations of the state ratio from the corresponding national ratio and also a broad index of variation based on the ratio of the average deviation to the national ratio.

The three indicators of inter-state variation—the range, the average deviation and the index, exhibit some consistency of trend only from 1931 onwards. In that year, the index reached its peak

Table 17: Comparative inter-state variation in rural and urban sex ratios, 1901-1961

		State sex ratios					
		All India	Max.	Min.	Range of variation	Average deviation*	Index of variation**
Rural	1901	979	1057	850	207	46.90	4.79
	1911	975	1058	812	246	52.13	5.35
	1921	970	1089	830	259	51.93	5.35
	1931	966	1071	821	250	53.60	5.55
	1941	965	1058	867	191	46.07	4.77
	1951	965	1033	870	163	45.53	4.72
	1961	963	1027	878	149	41.80	4.34
Urban	1901	910	1048	591	457	94.07	10.34
	1911	872	1032	614	418	103.93	11.92
	1921	846	1008	591	413	100.87	11.92
	1931	838	997	578	419	103.40	12.34
	1941	831	991	559	432	98.13	11.81
	1951	860	992	660	332	82.40	9.58
	1961	845	991	677	314	69.20	8.19

* Average of the deviations of the state sex ratios from the sex ratio of India.

** Average deviation ÷ sex ratio of India x 100.

in both the rural and urban sectors. Prior to this, the major change in the index was its rise between 1901 and 1911; this rise was corresponded by an increase in average deviation in both the sectors but by an extension of the range only in the rural sector. For the urban sector, the range had narrowed somewhat, while the average and the index rose.

Since 1931 the declining trend has been commonly indicated by the three indicators in both the sectors, excepting that the range for the urban sector was somewhat extended between 1931 and 1941. It is significant that the declining trend was much more

pronounced for the urban sector. It is further notable that the sectoral differential between the values of each indicator had tended to decrease between 1931 and 1961. The decrease was from 49.8 to 17.4 for the average deviation and from 6.8 to 3.9 for the index of variation.

Further, we may take note of actual differences between rural and urban sex ratios for different states in different census years.

Table 18: Difference between rural and urban sex ratios (no. of points) for individual states, 1901-61 (Rural—Urban)

State	1901	1911	1921	1931	1941	1951	1961
A. P.	—16	9	—8	23	6	—2	29
Assam	352	294	283	306	279	205	218
Bihar	60	111	164	190	178	160	201
Gujarat	—14	—17	16	14	56	44	60
J-K	79	87	76	37	91	59	40
Kerala	55	55	58	64	54	41	36
M. P.	58	78	104	111	98	68	114
Madras	—5	12	25	37	26	28	40
Maharashtra	141	204	218	197	179	193	194
Mysore	8	25	39	45	30	33	60
Orissa	72	111	126	147	144	148	208
Punjab	19	50	84	110	108	58	64
Rajasthan	—49	—32	—1	5	10	—9	31
U. P.	23	69	94	110	118	105	112
W. Bengal	342	368	380	383	386	279	242
India	69	103	124	128	134	105	118

In 1901 there were four states in whose case the urban ratio was higher than the rural. Rajasthan led these states with a difference of 49 points; here the excess of the urban ratio was repeated in three of the subsequent six censuses. The excess was very much smaller for Andhra Pradesh, in the second place and subsequently it was repeated twice. The other two states revealed

smaller excesses; in Gujarat, the excess was revealed again only in the next census of 1911, while in the remaining state of Madras it did not appear again.

The more general excess of the rural over the urban ratio was revealed by eleven states in 1901, by thirteen states in 1911, 1921 and again 1951 and by all the fifteen states in 1931, 1941 and 1961. Among the states, the excess was the largest for Assam in 1901 and for West Bengal in each of the subsequent censuses. The excess amounted to more than 100 points for three states including the above two and Maharashtra in 1901, while in 1961 it was so large additionally for the four states of Bihar, Madhya Pradesh, Orissa and Uttar Pradesh.

Comparing the 1901 and 1961 figures, it will be seen that the excess in favour of the rural sector was larger at the latter date in as many as eleven of the fifteen states; in the remaining four, Assam, West Bengal, Jammu-Kashmir, and Kerala, it was smaller. In absolute terms, the reduction of the rural excess in sex ratio has been substantial in only two states—Assam and West Bengal. In both these states, the difference was exceptionally large in 1901. The excess was reduced in the former state from 352 to 218 points and in the latter from 342 to 242 points.

In the above discussion, we considered first the relative size of rural and urban population in the states and then the differences between their sex ratios in the census years of the period. Both types of sectoral relationships have shown variations and the question may be raised as to whether the two variations are correlated. In order to find an indication of such a correlation we have expressed the sectoral relationships in terms of two ratios: (i) the ratio of urban to rural population and (ii) the ratio of the urban sex ratio to the rural sex ratio. The correlation exercise was first attempted between the two types of inter-state variations for each census year. The value obtained for none of the census years came up to the one indicative of a 10 per cent level of significance. We are left, thus, to conclude that there does not obtain any correlation between inter-state variation in the degree of urbanization and the corresponding variation in the quantitative relationship between the sex ratios of the two sectors.

Correlation was then computed for each state on the basis of the seven pairs of observations for the census years. We thus obtained fifteen values of correlation. Nine of these values remain

much below the 10 per cent level of significance. Among the remaining six, the correlation value just approximates the 10 per cent level of significance for West Bengal. The correlation here is positive. It is positive for two of the other states and negative for the remaining three. The overall changes during the period in the two types of sectoral relationships are indicated in Table 19.

A very substantial increase in the proportion of population living in urban areas occurred in each of the above states, excepting Gujarat, where it was initially the highest among the states.

Increase in urban proportion and reduction in sectoral differential in sex ratio appear to be correlated in states where the initial differential was of quite excessive size. This is notably true of both Assam and West Bengal; the differential is reduced in their case on account of both a rise in the urban and a decline of the rural ratio. Even so, the differential remains notably large. The case of Kerala, the third state with positive correlation, is rather exceptional. Kerala is the one state which revealed an excess of females in the total population at all the successive censuses of the period. The differential here is reduced on account of the rise in sex ratio being larger in the urban sector than in the rural.

In two of the three states with negative correlation, the initial difference was in favour of the urban ratio. In the third, the opposite was true but the size of the differential was not excessive, as compared, in any case, to the differential for the country as a whole. Thus, the differential tended to narrow down in states where the initial urban ratio was exceptionally small and to enlarge in the states where the urban ratio was higher than the rural ratio.

Confining attention to the urban sector alone, we may look into inter-state variation in sex ratio during the period since 1921, in which all states experienced, without any exception, the process of urbanization. The point of interest here is the extent to which urban population growth had in each state tended to exhibit selectivity in respect of sex. This is indicated in Table 20 giving percentages of females in the decennial increments to the population of urban areas in different states for the four decades in question.

The female proportion of the increment was smaller than of the initial population for the country as a whole in 1921-31, 1931-41 and 1951-61 but larger in 1941-51. Among the states, it was

Table 19: Change between 1901 and 1961 in urban proportion and rural-urban sex ratios in states showing correlation between the two.

State	Coefficient of correlation	% urban		Sex ratios			
		1901	1961	1901		1961	
				Rural	Urban	Rural	Urban
					Difference		Difference
Assam	+ .78	2.3	7.7	943	591	895	677
W. Bengal	+ .67	12.2	24.5	994	652	943	701
Kerala	+ .86	7.1	15.1	1008	953	1027	991
Orissa	— .88	2.5	6.3	1039	967	1015	807
Madras	— .75	14.2	26.7	1043	1048	1003	963
Gujarat	— .75	22.3	25.8	951	965	956	896
							60

smaller for twelve states in 1921-31 and again in 1951-61, and for six states in 1931-41. In the remaining decade there were instead twelve states for which the opposite was true. In size, the differential between the increment and the initial population varied from -3.1 points for Orissa to 16.0 points for West Bengal in 1941-51 and from -12.6 points for Rajasthan to 5.5 points again for West Bengal in 1951-61.

The female content of the increment remained smaller than of the initial population consistently in all the four decades in only two states, Madras and Orissa. It was larger in one of the four decades in Uttar Pradesh, in two decades in nine states and in three decades in the remaining three states—Punjab, Jammu-Kashmir, and Kerala.

For the country as a whole, male selectivity in urban growth has been true of all the four decades under consideration. In degree, it differed markedly only in 1941-51; the male proportion of the increment to urban population of the country as a whole was 51.7 per cent for this decade as compared to 55.6 per cent, 55.3 per cent and 55.8 per cent for 1921-31, 1931-41 and 1951-61 respectively. The 1941-51 decade stands out among these four decades as recording the highest female proportion in decennial increment in as many as eleven states; for the remaining four states, the decade recording the highest female proportion was the one of 1931-41.

None of the states revealed the contrary position of female selectivity in 1921-31 and also in 1951-61. In respect of the two middle decades, we have only one state, namely, Kerala, which revealed female selectivity in both these decades. In 1941-51 there were, in addition to Kerala, five other states recording the female proportion to be in excess of a half of the decennial increment. Among these states the proportion at the highest was 51.8 per cent for West Bengal. Thus, among the 60 entries in the above table (for 15 states in four decades) we have as many as 53 entries, indicating some measure of male selectivity in the process of growth of the urban population. In degree, the selectivity was at its maximum for Assam among the states in 1921-31 and 1941-51, for West Bengal in 1931-41 and for Rajasthan in 1951-61.

Finally, it may be interesting to consider the state urban sex ratio in relation to the sex ratio of the aggregate urban population of the country as a whole. Accordingly the following table pre-

Table 20: Female proportion in decennial increments to urban population, 1921-1961

State	1921 Pop.	1921-31 Increment	1931 Pop.	1931-41 Increment	1941 Pop.	1941-51 Increment	1951 Pop.	1951-61 Increment	1961 Pop.
A. P.	49.65	46.97	49.15	49.47	49.36	50.30	49.67	42.90	48.75
Assam	38.81	31.68	37.13	41.49	38.15	44.19	40.56	40.21	40.37
Bihar	46.51	37.33	44.81	46.65	45.31	46.82	45.72	42.88	44.78
Gujarat	48.23	48.70	48.29	44.74	47.30	49.63	47.92	44.03	47.27
J-K	44.54	40.74	43.94	45.02	44.13	50.68	45.14	47.93	45.78
Kerala	48.92	49.53	49.07	50.76	49.47	50.41	49.79	49.73	49.78
M. P.	46.74	45.94	46.59	47.68	46.86	49.71	47.57	43.08	46.12
Madras	50.52	48.80	49.93	49.04	49.77	49.34	49.64	46.50	49.06
Maharashtra	43.68	46.95	44.12	47.08	44.75	44.53	44.67	43.58	44.48
Mysore	48.33	47.07	48.11	49.27	48.33	48.75	48.49	43.52	47.72
Orissa	49.06	39.83	48.02	46.92	47.77	44.70	46.83	42.18	44.67
Punjab	42.75	40.99	42.38	45.24	43.14	50.95	44.80	45.06	44.86
Rajasthan	47.27	48.48	47.45	46.59	47.29	50.25	48.13	35.51	46.88
U. P.	45.22	40.27	44.66	44.33	44.59	47.12	45.06	42.15	44.80
W. Bengal	37.13	33.25	36.62	34.61	35.84	51.87	39.78	45.25	41.22
India	45.83	44.39	45.60	44.70	45.38	48.27	46.23	44.15	45.79

sents the former state ratios in terms of percentages of the latter national ratio.

Table 21 : State urban sex ratio relatives, (with all India urban sex ratio-100) 1901 to 1961

State							
A. P.	109.78	114.68	116.55	115.27	117.33	114.77	113.49
Assam	64.94	73.62	74.94	70.53	74.25	79.30	80.12
Bihar	109.56	107.45	102.72	97.02	99.64	97.91	95.98
Gujarat	106.04	110.09	110.05	111.46	108.06	106.98	106.04
J-K	88.90	91.63	94.92	93.56	95.07	95.70	99.88
Kerala	104.73	109.75	113.24	115.04	117.81	115.35	117.28
M. P.	102.97	104.70	103.78	104.06	106.14	105.47	101.30
Madras	115.16	118.35	119.15	118.97	119.25	114.65	113.96
Maharashtra	94.73	91.28	91.73	94.27	97.47	93.84	94.79
Mysore	107.25	109.98	110.64	110.62	112.52	109.42	108.05
Orissa	106.26	108.60	113.83	110.26	109.99	102.44	95.50
Punjab	91.32	87.39	88.18	87.71	91.34	94.42	96.33
Rajasthan	104.07	107.34	106.03	107.76	107.94	107.91	104.38
U. P.	100.77	97.82	97.52	96.30	96.87	95.35	96.09
W. Bengal	71.65	70.41	69.86	68.97	67.27	76.74	82.96

Deviation from the national ratio has been the greatest for Assam in 1901 and 1961 and for West Bengal in each of the intervening dates. The minimal state ratio measured only 64.9 per cent of the national ratio in 1901. It rose to 70.4 per cent in 1911 and declined successively to reach a level of 67.3 per cent in 1941. After this, it rose again to 76.7 per cent in 1951 and 80.1 per cent in 1961. At the other end, the maximum excess of the state over the national ratio was recorded by Madras in successive years from 1901 to 1941 and by Kerala in 1951 and 1961. The variation, over the years, of the highest among the state ratios remained confined between 115 per cent and 120 per cent of the national ratio.

Comparing the 1961 relatives with those of 1901, it will be seen that the deviation of the state from the national ratio has been the same at the two dates only for one state, namely, Gujarat. The deviation had increased in five states, Andhra Pradesh, Kerala, Mysore, Rajasthan and Uttar Pradesh. In the first four of these states, this involved an increase in the excess of the state over the national ratio, while for Uttar Pradesh the small excess of the state ratio was converted into a larger excess of the national over the state ratio. In the remaining ten states, the deviation was reduced. In five states, this amounted to a reduction in the excess of the national ratio; in two, a reduction in the excess of the state ratio; while in the remaining two, the excess of the state ratio was converted into an excess of the national ratio but the latter excess was comparatively smaller in amount.

In 1961, urban sex ratios for eight states were smaller and for seven states higher than the corresponding national ratio. Ratios of seven states were within a range of ± 5 per cent of the national ratio, of three other states were within a range of ± 10 per cent and of the remaining five beyond the latter range. The range extended from 80.1 per cent for Assam to 117.3 per cent for Kerala, as against the corresponding 1901 range extending from 65.0 per cent for Assam to 115.2 per cent for Madras.

CHAPTER THREE

SIZE OF TOWNS

The urban sector is heterogenous in composition. Cities, towns and town groups constituting the sector are diverse in several respects, such as size, origin, function, economic base, social milieu, etc. It would have been interesting to relate the two variables, we are here concerned with, to the other variables expressing the different kinds of diversities obtained within the sector. The paucity of the relevant data, however, severely limits such an attempt and we are left to carry forward the analysis of the two variables on the basis of the classification of the urban population according to the size of community of residence only.

This discussion will be based on the census classification of towns, which is readily available for the seven censuses of the period under consideration. The classification in each census uniformly comprised six classes obtained by dividing the range of variation in the size of population as follows: (i) 100,000 or more; (ii) 50,000 to 99,999; (iii) 20,000 to 49,999; (iv) 10,000 to 19,999; (v) 5,000 to 9,999; and (vi) less than 5,000 persons.

The Union

These classified data of the urban sector are utilised in Table 22 indicate the number of towns and town-groups in each class*, their combined population and their per cent proportions in the total urban population at each of the seven censuses.

After a slight reduction in the first decade (1901-11), the number of towns comprising the urban sector increased progressively in the course of the next four decades from 1,872 in 1911 to 2,924 in 1951. Thereafter, in the last decade, there followed a rather sharp decline to 2,462 in 1961. This decrease was due to the definitional changes introduced, and rather strictly adhered to, by the 1961 Census. This led to elimination from within the urban sector of some 803 towns which were classified as urban in 1951. Another group of 497 towns, not so classified in 1951, was, however,

*Source: Table A-IV, *Census of India 1961, Vol. 1, India*, Part II-A (1) General Population Tables, pp. 363—633.

Table 22: Growth in different size classes of towns, 1901-1961

Year	I	II	III	IV	V	VI	All
A. Number of towns							
1901	26	45	139	417	763	495	1,885
1911	25	43	149	382	737	536	1,872
1921	31	52	161	388	760	617	2,009
1931	36	56	207	462	820	561	2,142
1941	55	79	265	519	950	458	2,326
1951	82	101	353	630	1158	600	2,924
1961	113	138	484	748	761	218	2,462
1961 Adj.	113	138	485	790	1167	571	3,264
B. Population (—000s)							
1901	6,225	3,003	4,206	5,615	5,207	1,596	25,852
1911	6,472	2,937	4,410	5,288	5,064	1,771	25,942
1921	7,593	3,197	4,636	5,317	5,293	2,050	28,086
1931	9,498	4,112	6,004	6,302	5,698	1,842	33,456
1941	16,004	5,123	7,744	7,087	6,715	1,480	44,153
1951	26,426	6,741	10,438	8,703	8,155	1,981	62,444
1961	38,177	9,387	14,628	10,289	5,710	746	78,937
1961 Adj.	38,177	9,387	14,657	10,824	8,643	1,986	83,674
C. Per cent of urban population in each class							
1901	22.93	11.84	16.50	22.06	20.38	6.29	100.00
1911	24.19	10.90	17.69	20.46	19.81	6.95	100.00
1921	25.31	12.43	16.89	18.91	19.03	7.43	100.00
1931	27.37	11.95	18.76	18.97	17.32	5.63	100.00
1941	35.40	11.77	17.71	16.29	15.38	3.45	100.00
1951	41.77	11.06	16.73	14.02	13.20	3.22	100.00
1961	48.36	11.89	18.53	13.04	7.23	0.95	100.00
1961 Adj.	45.62	11.22	17.52	12.94	10.33	2.37	100.00

brought in. Many of these new towns were, however, included in the existing town-groups, so the net reduction in the number of towns amounted to 462.

The above noted reduction affected the smallest two of the six size classes. It amounted to 397 in class V and to 382 in class VI. In each of the other four classes, the number of towns had increased between 1951 and 1961; the number had increased by 31 in class I, 37 in class II, 131 in Class III and 118 in Class IV.

As noted earlier, the population of the sector increased in each successive decade and the rate of increase had tended to accelerate upto 1951. The increase in population was commonly shared by all the six size classes in 1911-21 and again in 1941-51. In each of the remaining decades, we have one or more classes showing a decrease in population.

Only in two of the six classes, namely I and III, the increase in population appears to have been a continual process for the period as a whole, with each decade recording an increase in population. In Classes II and IV the process of population growth has been continuous from 1911 onwards, the first decade having registered a decrease in each case. Decrease in population was experienced more often by the remaining two classes; by class V in 1901-11 and 1951-61 and by class VI in 1921-31, 1931-41 and 1951-61.

It may be noted in respect of class I that the growth of population has all along been more pronounced than the increase in the number of towns. Consequently, the average size of towns in this class rose steadily from around 240,000 in 1901 to about 340,000 in 1961. None of the other classes show any significant variation in the average size of towns.

The pattern of distribution of the urban population, as between the size classes of towns, has kept on changing from decade to decade on account of the inter-class differentials in rates of growth indicated by the table. A striking feature of these inter-class differentials is the consistency of the increasing trend revealed by class I. Its share in the total urban population increased continually through the period from 22.9 per cent in 1901 to 48.4 per cent in 1961. The next two classes do not reveal any consistent increase in their respective shares; however, each claimed a somewhat larger share in 1961 as compared to 1901.

The remaining three classes experienced a reduction in their

relative shares of the total urban population. The reduction was experienced in each successive decade from 1901 onwards by class V, from 1921 onwards by class VI and from 1931 onwards by class IV. The reduction in the share resulting from the 1961 definitional changes has been sizable for class VI and also for class V.

Comparison between the 1901 and 1961 patterns of distribution indicates that the combined increase in the shares of the first three classes was of the order of 27.5 percentage points; the gain claimed by class I in the above amounted to as much as 25.4 points. Correspondingly the shares of the remaining three classes were reduced; the reduction amounted to 9.0, 13.2 and 5.3 points for classes IV, V and VI respectively.

We must, however, add that a part of the change in the pattern between 1951 and 1961 is explained by the 1961 changes in the definition. If we take into consideration for 1961 the data so adjusted as to conform to the 1951 definition, the overall gain during the period as a whole accrues almost wholly to class I. The gain in share of class III is entirely nominal and class II records instead a slight reduction. The reduction in each of the other three classes is smaller than the one indicated by the unadjusted classification of the 1961 census, considered above. The difference between the adjusted and unadjusted shares is comparatively large for class V.

A feature of population growth, which is shared by all the classes, is the persisting differential in the rate of growth between the male and female segments of the population, which was referred to earlier in the discussion of rural and urban rates of growth. How this differential varied from decade to decade in respect of each class and between the classes in each decade will be apparent from Appendix B-7 giving separate rates of growth for the two segments. Here, since the sex differential gets fully translated into a change in sex ratio of the population in question, we may proceed to consider the comparative changes in sex ratios of the population in different urban classes. For this purpose, the following table presents for each class a series of seven sex ratios computed from the data of the censuses of the period under consideration.

It is clear that there operated through the period a general tendency for the direction of change in sex ratio to be the same for all the classes. It was so in the first two decades and also in

Table 23: Sex ratios of population in different urban classes, 1901-1961

Year	Class of towns							Rural	India
	I	II	III	IV	V	VI	Total		
1901	785	935	940	967	968	927	910	979	972
1911	730	878	907	945	952	912	872	975	964
1921	709	836	874	930	941	905	846	970	955
1931	724	836	865	909	928	888	838	966	950
1941	721	867	873	923	934	894	831	965	945
1951	789	884	899	935	946	902	860	965	946
1961	799	868	885	914	902	854	845	963	941

1941-51. In each of the remaining three decades, the direction was the same for five of the six classes; only Class I revealed in each decade a divergent trend.

The first two decades witnessed a general reduction in urban sex ratios. For the sector as a whole, the ratio decreased by 38 points in the first and by 26 points in the second decade. All the different classes show a declining trend. In the course of these two decades, the ratio for class I decreased by 76 points and the one for class II decreased, at the maximum among the classes, by as much as 99 points. In contrast the decrease amounted to only 22 points for class VI.

Combining the first three classes to represent what has at times been called 'effective-urban' component of the sector, we find that the ratio for this component registered a decline of 82 points from 864 in 1901 to 782 in 1921. In contrast, the ratio for the combined population of the remaining three classes, representing, say, the 'quasi-urban' component, decreased by only 31 points from 962 in 1901 to 931 in 1921.

The declining trend was carried forward through the following two decades, 1921-31 and 1931-41, in so far as the general ratio of the sector is concerned. The successive reductions were, however, smaller as compared to those of the preceding two decades. Among the classes, class I showed a divergent trend both in 1921-31 and in 1931-41. In the former decade, it registered an increase in contrast to the decrease common to the other classes, and in the

latter decade it revealed a decrease in the ratio, while the ratio for each of the other classes had increased.

Then in 1941-51 followed a reversal of the declining trend in the general ratio. This now showed an improvement from 831 in 1941 to 860 in 1951. The improvement was shared by all the classes, the maximum increase accruing among them to class I and the minimum to class IV.

Taking these three decades (from 1921 to 1951) together, we find that the general ratio improved by 14 points. All the classes, excepting the VI, recorded improvement between the two dates, 1921 and 1951. The increases in the case of class I and II were much more substantial and the reduction experienced by class VI was quite nominal. Between the two dates, the ratio for the effective urban component improved by 46 points and the one for the quasi-urban component also improved but by only 5 points.

The above noted reversal of the trend was not carried forward into the next decade of 1951-61. During the decade, the declining trend re-asserted and brought down the ratio for the sector as a whole by 15 points to a level just below the 1921 ratio. Here again, the predominant class I revealed a divergent trend; it showed an increase of 10 points in the ratio, while the other classes had experienced varying degrees of decrease in their ratios. The decrease was quite sizable for classes V and VI, which were, as noted earlier, affected the most by the definitional changes introduced by the 1961 census.

It is interesting further to note that the ratio for the effective urban component increased during the decade just a little, from 828 to 829 only; whereas the one for the quasi-urban part decreased by 29 points from 936 to 907. The differential between the two was thus reduced by 30 points from 108 points in 1951 to 78 points in 1961.

For an overview of the period as a whole, a comparison between 1901 and 1961 shows that the ratio for the urban sector was smaller at the latter date by 65 points. During the period, the relative shares of the two effective-urban and quasi-urban components of the sector had changed considerably; the former accounted for as much as 79 per cent of the urban population in 1961 as against 51 per cent in 1901. The ratios for both the components were relatively lower in 1961, of the former by 35 points and of the latter by 55 points. Among the classes, an increase of some 14

points was recorded by the ratio for class I, while the ratios for the other five classes had all experienced decreases, ranging from 53 points for class IV to 73 points for class VI.

For a comparative view of the sex ratio levels of different classes, we may arrange them in the order of magnitude for each date included in the above table. The arrangement is found to be the same at five of the seven dates, excepting the first and the final year. At each of these five dates the largest ratio was claimed by class V and the smallest by class I and the other classes were arranged in the order as follows: IV, VI, III and II. In the first year (1901), the extremes of the order were occupied respectively by the same two classes but class VI occupied the fifth position and was thus preceded by classes III and II. In the final year, the order was similar to that of 1901, excepting for an exchange of positions between the two classes, IV and V, at the top of the order. On the whole, the changes in arrangement according to the order of magnitude cannot, however, be regarded as very significant.

Of the inter-class differentials in levels of sex ratio, the most significant have been the differentials between class I and the other classes. The differential between class I and the next higher class in the order of magnitude of the ratio (Class VI) measured as much as 142 points in 1901. It was reduced to 56 points in 1961 but still it was the largest among comparable differentials between any two classes. In fact, the range of variation in sex ratio for the other five classes was only 41 points in 1901, though it was much more extensive in 1961, measuring 60 points. If we take all the six classes together, the range of variation, (i.e. the difference between the highest and the lowest sex ratio), measured 183 points in 1901. It was extended to 222 points in 1921 but was subsequently reduced to 157 points in 1951 and further to 115 points in 1961. Here, we have a clear indication that the amount of inter-class variation in sex ratio had tended strongly to be reduced during the last two decades in particular.

Further we may compare ratios for the different classes with the corresponding ratio for the sector for each of the seven censuses of the period. For this purpose we express the class sex ratios as relatives of the ratio for the sector as a whole, taking the latter to be equal to 100.

The changes in the relative for the ratio of class I appear to

Table 24: Relatives of sex ratios of population in different urban classes with the sex ratio of total urban population=100, 1901-1961.

Year	Class of towns					
	I	II	III	IV	V	VI
1901	86.3	102.8	103.2	106.4	106.3	102.0
1911	83.7	100.7	104.0	108.4	109.1	104.7
1921	83.8	98.8	103.3	109.9	111.2	107.0
1931	86.4	99.8	103.2	108.5	110.7	106.1
1941	86.8	104.3	105.1	111.1	112.4	107.7
1951	91.7	102.7	104.5	108.7	110.1	104.1
1961	94.6	102.7	104.7	108.2	106.6	101.3

be quite significant. There was an initial decrease in the relative for class I but since 1911 it has been increasing continually. Thus, though class I ratio was still smaller than the general ratio in 1961, the difference between the two had been considerably reduced; in 1961 the relative was smaller by only 5.4 per cent as compared to the corresponding difference of 16.3 per cent in 1911 and of 13.7 per cent in 1901. For the other five classes the relatives generally indicate an excess over the ratio for the sector; the only exceptions being recorded in the case of class II in 1921 and 1931. The excess, it will be noticed, has all along been comparatively large for classes IV and V.

The States

We may now see how the above changes in the urban population of the country as a whole were shared by its segments in the different states. Comparative analysis will, for this purpose, focus attention mainly on the over-all changes in the values of pertinent variables for individual states over the period taken as a whole, as indicated by the comparison of the data between 1901 and 1961. We will deal in turn with variations in the size of population in different urban classes and changes in the levels of their sex ratios.

As noted earlier, the urban sector for the country as a whole had experienced a steady and at times accelerating process of expan-

sion. The number of towns comprising the sector had thus increased from 1,885 in 1901 to 2,462 in 1961. This numerical increase was shared by all but the two states of U.P. and Mysore. The number of towns at the later date was smaller in both these states. The decrease so indicated was nominal for Mysore but quite substantial for Uttar Pradesh. The substantial decrease of towns in the case of Uttar Pradesh is largely explained by the elimination of towns from within the smaller urban classes, constituting the quasi-urban component of the sector, in 1961 thanks to the application of definitional changes, noted earlier.

Of the six classes, the first four increased their numerical strength during the period in almost all the states, with only three exceptions, class II in Rajasthan and classes II and III in the case of Jammu-Kashmir, where the former of these classes did not have any town in both 1901 and 1961. In some cases the increase in the number of towns represented an emergence of new towns during the period, there being no towns in the class for the States in question in 1901. This is true, for example, in respect of class I, of Assam, Kerala and Orissa, none of which had any city in 1901.

In respect of the remaining two classes, V and VI, the number of towns had decreased during the period in several states. Besides U.P. and Mysore, the number had so decreased in both the classes in four other states—Gujarat, Maharashtra, Punjab and Rajasthan. The number was smaller in class VI for two more states, M.P. and West Bengal. The remaining states, nine for class V and seven for class VI, recorded increases in the number, which added up to almost equal the aggregate decrease of the states noted above in respect of class V but failed to have such a compensatory effect in the case of class VI. In the latter class the number in 1961 was in consequence much less than half the corresponding number in 1901 for the country as a whole.

Barring exceptions, there has been a general trend of increase in population over the period in all classes in almost all the states. For the country as a whole the population of the urban sector had increased by 206 per cent between 1901 and 1961. Among the states the corresponding increase was the largest for Assam, with 953 per cent increase in the urban population and the least in Uttar Pradesh, where it was only 76 per cent. The extent to which the different classes had increased their population in the

states is shown below by expressing the 1961 population of each class in each state as a percentage of the corresponding 1901 population.

Table 25: 1961 Population in urban classes as per cent of the corresponding population of 1901.

	Urban classes						All
	I	II	III	IV	V	VI	
A. P.	597	*	402	172	126	*	341
Assam	*	*	*	467	352	307	1053
Bihar	1252	187	261	292	181	114	357
Gujarat	565	564	318	126	112	20	262
J-K	324	*,	58	*	*	*	374
Kerala	*	150	565	398	491	*,	562
M. P.	1304	143	284	276	195	64	317
Madras	494	337	404	175	181	3144	330
Maharashtra	634	592	375	161	72	58	347
Mysore	1346	319	365	435	84	42	321
Orissa	*	444	234	408	707	219	436
Punjab	747	444	350	137	89	104	262
Rajasthan	775	92	265	221	91	27	212
U. P.	401	148	256	105	49	4	176
W. Bengal	442	279	433	122	139	114	413
India	613	323	359	193	119	54	305

* Class not represented in 1901.

*, Class not represented in both 1901 and 1961

We have ten cells with no entry in the above table. Eight of these classes did not have any town in 1901 and the remaining two, in both 1901 and 1961; hence no relatives could be computed for them. Among the six classes, the highest rate of growth during the period is claimed by class I in all states, with the only exception of Madras, where the highest rate is claimed by class VI. In the case of Madras, the number of towns in class VI increased from only 1 in 1901 to 17 in 1961, a sixteen-fold increase as against an increase of thirty-fold in the population in the class. Further, it may be noted here that class I claims the second largest rate of

increase in population among the six classes; the number of towns in this class increased from 3 to 11, while its population increased by nearly four times the corresponding 1901 population.

The first four classes recorded higher rates of population growth as compared to the other two in almost all states. The second largest increase is recorded by class III in six states and by class II in four other states. We have, however, two exceptions, the state of Jammu-Kashmir in respect of class III and of Rajasthan in respect of class II, showing contrasting decreases in population. In both these cases, the number of towns did not vary between 1901 and 1961.

In respect of each of the remaining two classes, we have several states showing decrease in population. This has been so for all states recording decrease in the number of towns in the respective class, with the exception of class V in Gujarat, for which population increased by 12 per cent while the number of towns had shown a small decrease and of class VI in Punjab, showing an increase of 4 per cent in population as against a small decline in the number of towns. The extent of decrease in population has been much more drastic for class VI as compared to class V. In Uttar Pradesh the population in class VI was reduced to a mere 4 per cent of the corresponding figure of 1901, in Gujarat to 20 per cent and in Rajasthan to 27 per cent.

It may be interesting also to see how in each state the different urban classes had shared the increase in total urban population during the period. For this purpose, we give below class-wise percentage distribution of the increase over the period for each state as well as for the country as a whole.

The role of class I in absorbing the increase in urban population is notable. More than half the increase of urban population in the country as a whole is claimed by this class. Among the states, the proportion claimed by Class I varied from only 17 per cent in Orissa to as much as 95 per cent in Uttar Pradesh. In any case, class I accounts for the largest part of the increase among the six classes in all but the two states of Orissa and Assam. The next position in the order of importance is occupied by class III in the country and in eleven of its fifteen states. Thereafter, we have, in the order, classes II and IV in the third and fourth places, respectively accounting for 11 per cent and 9 per cent of the increase in the country as a whole. The relative positions of these

POPULATION — SIZE AND SEX COMPOSITION

ble 26: Per cent distribution of increase between 1901 and 1961 in urban population in each state by urban classes

	Urban classes					
	I	II	III	IV	V	VI
A. P.	50.25	12.00	25.75	9.35	2.56	0.09
Assam	24.58	7.08	39.43	10.16	15.39	3.36
Bihar	55.12	8.32	18.52	13.58	4.37	0.09
Gujarat	57.90	15.58	24.94	4.39	1.49	4.30
J-K	63.33	—	3.46	13.65	7.62	18.86
Kerala	47.75	4.68	27.66	15.93	3.98	—
M. P.	52.66	3.63	19.50	15.08	10.30	1.17
Madras	47.31	16.31	22.14	8.91	4.40	0.93
Maharashtra	76.87	8.03	12.65	5.62	2.72	0.45
Mysore	55.47	12.54	16.82	22.11	2.22	4.72
Orissa	17.11	20.66	15.09	27.44	19.08	0.62
Punjab	41.57	27.16	27.75	5.19	1.88	0.21
Rajasthan	62.48	1.25	24.03	22.35	2.36	5.25
U. P.	94.73	8.84	23.55	1.16	14.09	14.19
W. Bengal	57.73	22.64	17.28	1.39	0.91	0.05
India	55.26	11.04	18.07	9.01	5.94	0.68

two classes differed as between the states; in seven states class II preceded, and in the other eight was preceded by, class IV.

With regard to the two remaining classes, V and VI, it is clear that their individual shares in the increase of urban population were comparatively much smaller in all the states, excepting Orissa, Jammu-Kashmir and Assam. The patterns of distribution of the increase by urban classes was different for these states as compared to the general pattern for the country as a whole. This becomes even more striking when we compare the combined share in the increase of the three smaller classes, which are bracketed to form the quasi-urban component of the sector. The share of the

quasi-urban component comes to only 15 per cent in the country as a whole but to as much as 47 per cent in Orissa, 40 per cent in Jammu-Kashmir and 29 per cent in Assam.

In contrast, Uttar Pradesh and Maharashtra exhibit a divergence of their patterns from the general pattern of the opposite kind. Classes V and VI record in their case decreases in population and so have each a negative share in the increase in urban population. Correspondingly, the shares of classes I and III in Uttar Pradesh and class I in Maharashtra appear to be very excessive as compared to the respective figures for the country as a whole.

The inter-class variations in the over-all rates of population growth during the period led to changes in the pattern of distribution of the urban population by size classes in each state. The general trend in this connection has been for the first three classes to gain in shares at the cost of the other three. The effective urban component tended thus to increase its proportion in the urban sector at the cost of the quasi-urban population. Within the former component the importance of class I tended also to increase. The extent to which this happened in different states is indicated in Table 27 by comparing percentage distribution of urban population in each state in 1961 with the corresponding distribution of 1901.

There has been during the period a considerable decrease in the proportion of the quasi-urban component. In the country as a whole, the proportion of quasi-urban in the total urban population decreased from 48.8 per cent in 1901 to 21.2 per cent in 1961. The 1961 definitional changes evidently contributed to this relative change, since the elimination of towns related largely to the two smallest classes, V and VI. But such an effect must be considered only as an added support to the trend which had operated more or less continually during the period; by 1951 the quasi-urban proportion had already decreased to 30.4 per cent.

The general decrease in quasi-urban proportion was not shared among the states by Jammu-Kashmir and Orissa. In the former case, the emergence of the quasi-urban population is in fact traced to the period itself, there being no town in any of the three classes in 1901. The increase in the proportion in Orissa is likewise explained by emergence of new towns in these

Table 27: Percentage of urban population in classes I, II and III by states, 1901-1961.

State	% of population in urban areas		% of urban population in classes								
			I			II			III		
	1901	1961	1901	1961	1961	1901	1961	1961	1901	1961	I+II+III
A. P.	9.6	17.4	24.4	42.7	—	—	8.5	20.6	24.2	45.0	75.4
Assam	2.3	7.7	—	22.2	—	—	6.4	—	35.7	—	64.3
Bihar	4.0	8.4	12.3	43.1	24.5	24.5	12.9	29.6	21.6	66.4	77.6
Gujarat	22.3	25.8	20.1	43.5	5.4	5.4	11.7	18.5	22.5	44.0	77.7
J-K	7.4	16.7	77.2	67.0	—	—	—	22.8	3.5	100.0	70.5
Kerala	7.1	15.1	—	39.3	43.1	43.1	11.5	27.5	27.6	70.6	78.4
M.P.	8.6	14.3	9.5	39.1	18.2	18.2	8.2	23.0	20.6	50.7	67.9
Madras	14.1	26.7	27.6	41.3	15.8	15.8	16.2	16.7	20.5	60.1	78.0
Maharashtra	16.6	28.2	35.5	65.0	4.0	4.0	6.9	11.4	12.3	50.9	84.2
Mysore	12.6	22.3	9.8	41.3	12.6	12.6	12.6	14.0	15.9	36.4	69.8
Orissa	2.5	6.3	—	13.2	20.2	20.2	20.5	37.7	20.3	57.9	54.0
Punjab	11.7	20.1	10.4	29.7	12.8	12.8	21.7	18.0	24.0	41.2	75.4
Rajasthan	15.1	16.3	10.3	37.8	16.9	16.9	7.3	16.2	20.3	43.4	65.4
U. P.	11.1	12.8	23.9	54.4	14.0	14.0	11.8	11.4	16.6	49.3	82.8
W. Bengal	12.2	24.4	48.6	56.5	2.6	2.6	17.8	19.8	17.0	71.0	91.3
India	10.8	18.0	22.9	48.4	11.8	11.8	11.9	16.5	18.5	51.2	78.8

classes during the period; as many as 40 out of the 48 towns added during the period came to be included in these classes in 1961. It is possible that the comparative importance of the quasi-urban population in these states is related to the fact that urbanization has, in these states, had a much later start. In any case, these two were among the least urbanized states of India in 1961.

The table further indicates that the major share of the increase in the proportion of effective-urban population accrued to class I. As already pointed out, of the combined gain of 27.6 percentage points of the first three classes for the country as a whole, class I accounted for 25.5 points. Among the states, comparative position of Kerala is much more striking. Here the proportion of effective-urban population increased by only 7.8 points but the share of class I in the total urban population increased by 39.3 points at the cost principally of class II, which lost 31.6 points. Among the remaining states, we have several where the increase in the proportion is not shared by classes II and III; in Bihar and M.P., both these classes suffered a decrease in the proportion, while class II in Rajasthan and U.P. and class III in West Bengal also recorded a decrease in the proportion.

The general trend of increase in the proportion of urban population claimed by class I is shared by all states, including Orissa and excluding only Jammu-Kashmir. In Orissa, the increase of proportion of class I failed to compensate fully for the decrease in that of class III and so there was a net reduction in the proportion of the effective-urban component. In Jammu-Kashmir, both the classes I and III suffered a decrease in proportion; but the extent of decrease was considerably smaller for class I.

Turning now to variations in sex ratios, it may be recalled that the ratio of the urban population in the country as a whole suffered a continual decline during the period from 1901 to 1941; this was followed by a sizable improvement during 1941-51 but this again was followed by a decrease during 1951-61. The ratio in 1961 was in consequence smaller by 65 points as compared to that of 1901. The overall decrease in the ratio was shared by eleven of the fifteen states; the remaining four states witnessed an improvement of the ratio between the two dates. The largest decrease amounted to as much as 105 points in U.P., while the

largest increase came to 86 points in Assam. Further, it may be recalled, in respect of population in different urban classes for the country as a whole, that the decrease in sex ratio was shared by all the classes, with the only exception of class I.

For an idea, further of the comparative changes in sex ratios of population in different urban classes in individual states, attention may be directed to Appendix B-9 which gives of each state class-wise sex ratios for 1901 and 1961. A perusal for these data reveals it clearly that the reduction of sex ratio has been much more common than its increase. This is true even of class I, irrespective of the fact that its ratio for the country as a whole was larger by 14 points in 1961 than in 1901. Only four states contributed to bring about this increase at the all-India level in the face of varying decreases recorded by eight other states, while the combined ratio for the remaining three states, with no population in this class in 1901 had come in 1961 to be much smaller than the ratio for the country as a whole. Among the former four, the largest increase amounted to some 112 points in West Bengal, from 526 in 1901 to 638 in 1961. Among the eight states showing the reduction, by far the largest decrease in sex ratio, amounting to as much as 235 points from 1011 to 776, was recorded in the case of Bihar.

In respect of each of the other five classes showing a reduction in sex ratio at the all-India level, we have a number of states showing a contrasting increase. The number of states showing such contrasting change is three for class II, two for class III, four for class IV, two for class V and three for class VI.

Among the states, the direction of change in sex ratio is the same in each class as that of the country as a whole only in the case of Maharashtra. This is true of Andhra Pradesh in respect of the four classes which had representation in both 1901 and 1961. Among the four states where the ratio for the sector as a whole had improved, in both Kerala and Assam the improvement is shared by all the classes that were represented in both 1901 and 1961. In Jammu-Kashmir we have only two such classes, I and III, the latter of which showed considerable improvement but the former, a relatively small decrease in the sex ratio, while in the case of the remaining states of West Bengal and Punjab the improvement is shared by three classes I, II and IV, with class I recording the maximum increase.

In seven of the eleven states, with a decreasing ratio, the reduction is shared by all the classes and we have no class showing a contrasting improvement of the ratio. In the remaining four, such improvements have occurred but the number of classes involved is small; these exceptional improvements relate to classes I, II and IV in Punjab, class VI in Madras and class I in both Andhra Pradesh and Maharashtra. For a summary view, it may be noted that out of 90 segments of population in six urban classes in each of the fifteen states, we have only eighteen recording improvement in sex ratio, eleven of which belong to the four states improving the sex ratio of their total urban population. We have also an exceptional case of class VI in Orissa, whose ratio was the same at both the dates.

We may also take note of sex ratio changes in the states for the decade 1941-51, showing a breach in the declining trend in the sex ratio of total urban population at the national level. For this purpose we give in Table 28 sex ratios for effective-and quasi-urban populations in each state for the four relevant dates of the period.

In the course of the first four decades, from 1901 to 1941, both the components suffered a reduction of sex ratio at the national level. Measured in terms of points, the amount of decrease for the effective urban component was much more than twice the decrease for the other component. At the state level, the reduction affected both the components in all the states, barring Kerala and Assam. In the case of Bihar, the reduction for the effective urban population amounted to 197 points as against a loss of 99 points suffered by the quasi-urban population; in Gujarat the respective declines amounted to 77 and 27 points and in U.P. to 114 and 80 points.

Of the two states showing contrasting increase in sex ratio, the increase for the quasi-urban population was much larger than the one for effective urban population in Kerala. In Assam, none of the classes forming effective-urban component was represented in 1901 and so the comparison is limited to the other quasi-urban population.

The increase in sex ratio between 1941 and 1951, too, was common to the two components at the national level. In amount, the increase for the effective component was nearly four times as large as the one for the quasi-component. The respective

Table 28: Sex ratios of effective-urban and quasi-urban population in states, 1901, 1941, 1951, 1961

	Effective-urban (Classes I to III)				Quasi-urban (Classes IV to VI)			
	1901	1941	1951	1961	1901	1941	1951	1961
A. P.	977	965	984	945	1018	987	992	969
Assam	—	617	687	655	591	616	676	718
Bihar	1008	811	832	797	976	877	873	863
Gujarat	935	858	891	886	990	963	982	935
J-K	809	808	828	841	—	753	810	852
Kerala	945	960	981	983	972	1017	1013	1022
M. P.	906	844	890	840	970	934	940	891
Madras	1025	974	971	954	1082	1024	1029	998
Maharashtra	765	750	753	779	973	952	961	928
Mysore	946	914	923	900	994	958	968	943
Orissa	923	859	863	768	1031	958	900	856
Punjab	791	737	795	804	860	799	838	843
Rajasthan	916	873	914	870	971	922	945	906
U. P.	888	774	802	810	945	865	862	824
W. Bengal	592	530	641	690	892	811	823	833
India	864	785	828	829	962	925	936	907

increases in sex ratios were quite generally shared by the states. Exceptional reduction was recorded by the state of Madras for the effective and by the four states of Orissa, Bihar, Kerala and U.P. for the quasi-urban population; the decrease was, however, nominal, except in the case of Orissa. The increase in the ratios was substantially larger in states, which had been directly affected by the post-partition influx of refugees from Pakistan. Compared to an increase of 43 points in the ratio for the effective component at the national level, there was an increase of 111 points in the ratio for West Bengal, of 70 points for Assam and of 58 points for Punjab. The increase amounted to only 11 points in

respect of the other component at the national level and to only 12 points for West Bengal but to 60 points for Assam and 57 points for Jammu-Kashmir.

In the final decade, the direction of change in the ratio was not the same for the two components. The ratio for the effective urban population at the national level showed a slight increase, while the one for the other component suffered a substantial decline. Among the states, the same type of divergence in the direction obtained in only two states of U.P. and Maharashtra. In Assam, on the other hand, the relative position of the two components was the reverse; effective-urban population showed a decrease and the quasi-urban, an increase in sex ratio. In the remaining twelve states the direction of change in the ratio was the same for the two components; the change involved a decrease in the ratio for eight of these states and an increase for the remaining four.

It will be seen that the small increase in the ratio for effective urban population at the national level for 1951-61 resulted from varying amounts of increase recorded individually by only six states in the face of reductions in the ratios of the other nine states. The maximum increase recorded, among the former states, by West Bengal amounted to 49 points only, while the maximum reduction was of 95 points for Orissa among the latter group of states. For the quasi-urban population the decrease in the ratio was shared by ten states, the decrease ranging in amount from 49 points in M.P. to 10 points in Bihar. The remaining five states improved their ratios of the quasi-urban population during the decade; the improvement amounted to 42 points at the maximum for Assam and also Jammu-Kashmir.

Over the period as a whole, the reduction has been common to both the components at the national level, the decrease amounting to 35 points for the effective and 55 points for the quasi component. For two states, Assam and Jammu-Kashmir the table does not permit comparison of overall change for the period between the two components; the former had no effective-urban and the latter no quasi-urban population in 1901. The respective other components in the two states showed improvements in the ratio which was considerably larger in the amount for the quasi-urban component of Assam. In nine of the other thirteen states both the components suffered a reduction in sex ratio. In

contrast, there was an increase in the ratio for both the components in Kerala. In the remaining three states the ratio for the effective urban population had increased and the one for the quasi-urban population had decreased. Notable among the varying amounts of changes in the state ratios are an increase of 98 points for the effective urban population in West Bengal and of 127 points for the quasi-urban component in Assam; and a decrease of 155 points for the effective-urban and of 175 points for the quasi-urban population in Orissa.

It may be noted further that the disparity of the sex ratios of the two components tended to increase upto 1941 and thereafter to decline successively during the next two decades. The excess of the ratio for the quasi-component over the one for effective urban population measured at the national level 98 points in 1901 but 140 points in 1941. This was reduced to 108 points in 1951 and further to 78 points in 1961. Similar reduction in the disparity during the period taken as a whole is obtained in eleven states. In two other states, Kerala and Bihar, for which comparison between 1901 and 1961 is possible, the disparity had increased; in the former from 27 to 39 points and in the latter from 32 to 68 points. The amount of reduction in disparity varied considerably among the eleven states mentioned above. At the maximum, the reduction amounted to 157 points, from 300 to 143 points in West Bengal and at the minimum, to only 5 points, from 48 to 43 points in Mysore.

As compared to 1901, the range of variation in disparity as between the states was much narrower in 1961. The disparity in 1901 ranged from —32 points in Bihar to as much as 300 points in West Bengal. In 1961 the range extended from 14 points in Uttar Pradesh to 149 points in Maharashtra.

We may now conclude this discussion with a reference to inter-class differentials in sex ratio at the level of states in 1961. The sex ratios of individual classes are for this purpose expressed below as percentages of the sex ratio for the urban sector for each state as also for the country as a whole.

At the national level the relatives vary from 94.6 per cent for class I to 108.2 per cent for class IV. Of the six, only class I had a ratio lower than of the sector as a whole. The tendency of the ratio to vary inversely with the size of town represented by different classes appears to be limited to the first four classes.

Table 29: 1961 sex ratios of urban classes expressed as percentages of the sex ratio of urban sector in individual states.

States	I	II	III	IV	V	VI
A. P.	98.2	96.4	100.0	101.1	100.9	101.9
Assam	91.6	96.2	100.3	114.3	103.4	99.1
Bihar	95.7	105.3	99.4	107.5	104.8	96.2
Gujarat	90.7	103.7	104.5	104.2	104.1	108.1
J-K	99.8	—	98.6	101.1	100.8	100.9
Kerala	96.7	98.8	103.0	103.3	102.4	—
M. P.	95.3	104.8	100.9	102.8	105.3	105.5
Madras	96.5	100.7	103.1	103.5	103.5	107.2
Maharashtra	93.3	111.2	112.4	115.9	115.7	114.9
Mysore	98.1	99.2	99.1	104.3	102.2	99.3
Orissa	89.5	89.7	104.8	102.6	111.9	110.5
Punjab	97.8	96.7	102.2	104.4	103.2	101.5
Rajasthan	97.4	96.7	101.8	103.2	102.9	97.5
U. P.	98.5	103.1	101.6	102.3	101.6	62.6
W. Bengal	91.0	112.8	110.0	118.4	120.7	111.4
India	94.6	102.7	104.7	108.2	106.6	101.3

The ratio for class V is lower than the one for class IV and the one for class VI is indeed lower than that of any other class, excepting class I.

Among the relatives for individual states, the one for class VI in U.P. is exceptionally low. This is attributed clearly to the pronounced shrinkage of the number of towns and of population in this class in 1961 on account of the application of definitional changes, referred to earlier. This is clear from the fact that the comparative position of this class did not exhibit any such abnormality in 1951. Then, the ratio of this class amounted to 104 per cent of the ratio for the urban sector of U.P., as compared to the corresponding only about 63 per cent in 1961.

A feature of inter-class variation in sex-ratio, shared by all the states, is the relative smallness of the ratio for class I. This indeed is the smallest of the class ratios in as many as ten states. Ratios

smaller than the ratios of respective urban populations in the states are encountered in respect further of class II, VI and III but not in the case of classes IV and V, the former recording the highest of the six ratios in some eight states.

The extent of inter-class variation in sex ratios varies from state to state. A broad indication of this inter-state variation is available in the size of differential between the highest and the lowest of the six class ratios. This differential measures 13.6 points at the national level. Its value among the states, barring U.P. which records an abnormally low ratio for class VI, is at the lowest 2.5 points for Jammu-Kashmir and at the highest, 29.7 points for West Bengal. Its value is greater than at the national level in five states including West Bengal; it is 22.4 points in Orissa, 22.7 points in Assam, 22.6 points in Maharashtra and 17.4 points in Gujarat. Among the states with the differential smaller than at the national level we have, besides Jammu-Kashmir, Rajasthan with 6.5 points, Mysore with 6.2 points, Punjab with 7.7 points and Kerala with 6.6 points.

CHAPTER FOUR

CITY POPULATIONS IN STATES

In the preceding chapter we dealt with the population living in cities as constituting the first of the six classes into which the urban population is divided according to size of towns. The inter-class comparison there indicated that this important segment of the urban population had expanded during the period from 1901 to 1961 at a much faster rate than any of the other classes. It was also noted there that its sex ratio had tended to increase in contrast to the decreasing trend generally exhibited by the ratios for the other segments of the population. The actual increment in the ratio, that materialized between 1901 and 1961, did not, however, prove to be substantial and the deficiency of females in the population has continued to be a characteristic feature of cities in India. In pursuing the matter further, we propose in this chapter to have a closer look at the variations in the size and sex-ratio of city population at the level of states and then examine in the next two the data relating to the growth of individual cities and to variation in their sex ratios.

National Aggregate of City Populations

To provide a background to the discussion relating to the states, we may briefly reconsider the changes in the size and sex ratio of the national aggregate of city populations. For this purpose, we give in Table 30 some of the relevant figures for the seven census years of the period.

The growth of city population during the period was not merely continuous but it had also tended to accelerate from decade to decade. On the basis of the decennial variations in the rates of growth, it is, however, possible to divide the period into two rather clear-cut phases of equal duration. In the first phase, extending upto 1931, the three decades did register successively higher rates of increase but the tempo of the growth had remained on the whole quite slow. In the second phase, extending from 1931 to 1961, the tempo was much faster. The increase during the second phase measured more than 300 per cent of the initial

Table 30: Size and sex ratio of city population in India, 1901-1961

	1901	1911	1921	1931	1941	1951	1961
1. No. of cities	26	25	31	36	55	82	113
2. Population of cities (millions)	6.2	6.5	7.6	9.5	16.0	26.4	38.2
3. Index no. (1901=100)	100	104	122	153	257	425	613
4. 2 as % of urban population	22.9	24.2	25.3	27.4	35.4	41.3	48.4
5. 2 as % of total population	2.6	2.6	3.0	3.4	5.0	7.3	8.7
6. S.R. of city population	785	730	709	724	721	789	799
7. S.R. Relatives (1901=100)	100	93	90	92	92	101	102
8. 6 as % of S.R. for urban population	86	84	84	86	87	92	95
9. 6 as % of S.R. for total population	81	76	74	76	76	83	85

population, while the corresponding rate of the first phase was only 53 per cent.

About the second phase, it is also notable that the increase in the aggregate size had accrued more from addition of new cities than from the expansion of the existing ones. It was in the second phase that the growth of the city population relatively to the urban as well as the total population came to assume some importance. The share of cities in the total population had increased from 2.6 per cent to only 3.4 per cent in the course of the three decades of the first phase. Thereafter, in the second phase, it rose rapidly to 5.0 per cent in 1941, to 7.3 per cent in 1951 and further to 8.7 per cent in 1961. Similar acceleration of the increasing trend is also observed when we consider the series of decennial changes in the proportion of the city to the urban population.

In respect of the sex ratio of city population, no consistent trend is observed. The ratio kept on varying from decade to decade but the difference in its level between the terminal years of the period is very small. Two decades of the period, however, stand out as showing comparatively larger variations. In 1901-11 there was a major decline in its level from 785 to 730 and then in 1941-51 followed a major increase, which raised the ratio to a level slightly higher than the one of 1901.

Comparison between the three series of ratios, namely, for the city, the urban and the total population, indicates that the direction of change in sex ratio was common to the three populations in four of the six decades of the period. In each of the remaining two decades, the city ratio had increased in contrast to the declining trend revealed by the other two. Both types of relationship of the city ratio appear, however, to have remained relatively stable upto 1941. Thereafter, during 1941-51 and, to a lesser extent, also in 1951-61, the divergence of the city ratio from the other two had tended strongly to narrow down. It is clear that the narrowing down was more pronounced in respect of the relation between the city and the urban ratios than in the case of the other relation of the city ratio to the one for the total population. In the result, the city ratio came in 1961 to be smaller than the urban ratio by only 5 per cent, while as compared to the total ratio it was still smaller by as much as 15 per cent.

In 1961, city population formed a part of the total population

in all the fifteen states of India. Additionally, among the remaining political units called the Union territories, it was reported in the case of the Delhi territory only. We have thus a series of 16 city populations at the level of states, which are added up to form the national aggregate of city populations; considered above.

In 1901, the national aggregate comprised only thirteen city populations, there being then no cities in three states, namely, Kerala, Orissa and Assam. As noted earlier, Kerala reported city population for the first time in the census of 1931. Orissa did so in 1951 and Assam, in 1961. Detailed data on the size and sex ratio of these 16 city populations, together with those for the national aggregates, are given for the seven census years of the period in a series of tables in Appendix B-10.

Size of City Population

Taking up the size of city population first, comparison of the data for the terminal years indicates that the process of growth over the period as a whole was entirely general, the 1961 city population in each state being several times larger than the one of 1901. Within the period, the process of growth appears to have operated continually in all states from 1921 onwards. For the earlier two decades we have several states showing contrasting decreases in city population. The decreasing trend affected five of the thirteen states in 1901-11 and two other states in 1911-21. The decrease in each of these seven states was soon made up and over the three decades of the first phase, taken together, there was an increase in city population in all states, without any exception. How the process had varied from state to state can be seen from Table 31 giving the rates of growth separately for the two phases of the period.

Per cent rates of growth for the first phase are exceptionally high for Mysore, M.P. and Delhi and extremely low for A.P., Gujarat, Bihar and U.P. Amongst the former three states, the growth had clearly resulted from the emergence of new cities in Mysore and M.P. In the case of the Delhi territory, it represented, however, the expansion of its only city. Of the four states with low rates of growth, the slowness of the growth process can be traced to a decrease in the number of towns only in the case of Gujarat. In A.P. and Bihar, the number had remained unchanged, while in U.P. there was in fact an addition of the ninth city during the phase.

Table 31: Growth of city population in States, 1901-31 and 1931-61

	No. of cities			Population (—000)			% variation	
	1901	1931	1961	1901	1931	1961	1901-31	1931-61
A.P.	1	1	11	448	467	2,677	4	473
Assam	—	—	2	—	—	203	—	—
Bihar	1	1	9	135	160	1,687	19	957
Gujarat	3	2	6	409	427	2,312	4	442
J.-K.	1	1	2	123	174	398	43	128
Kerala	—	2	4	—	219	1,003	—	358
M.P.	1	3	8	139	394	1,807	184	359
Madras	3	5	11	752	1,259	3,716	67	196
Maharashtra	3	4	13	1,144	1,905	7,251	67	280
Mysore	1	3	6	161	541	2,173	235	301
Orissa	—	—	1	—	—	146	—	—
Punjab	1	1	5	162	265	1,214	63	358
Rajasthan	1	2	6	160	264	1,242	65	370
U.P.	7	8	17	1,286	1,531	5,160	19	237
W. Bengal	2	2	11	1,091	1,446	4,829	32	234
Delhi	1	1	1	214	447	2,359	108	427
India	26	36	113	6224	9499	38177	53	302

In the second phase, the process had operated at a comparatively much faster rate in each of the sixteen states. The number of cities had increased in all states, with the only exception of the Delhi territory, where there existed, in any case, no scope for emergence of any new city. It is also clear that among the states the process had been much more pronounced, in this phase, for those that had experienced slower growth during the first phase. The highest rate of increase, claimed by Bihar, amounted to 957 per cent in contrast to its corresponding rate of only 19 per cent for the first phase. Of the two states reporting a nominal increase amounting to only 4 per cent each in the first phase, the increase in the second phase amounted to 473 per cent for A.P. and 442 per cent for Gujarat. U.P. is the only state in which the process has been comparatively slower in the first as well as in the second phase; even so, the rate of growth in the second phase happens to be over 13 times the one for the first phase. The lowest rate for the second phase is reported for J-K but here too, it is over three times as high as the rate for the first phase.

Taking the period from 1901 to 1961, as a whole, a part of the increase in the national aggregate is attributed to new emergence of city populations in Kerala, Orissa and Assam, the states which had no cities in 1901. Of the remaining 13 states, high rates of growth are reported for Mysore, M.P., Bihar and Delhi. In contrast, the rates appear to have been quite modest for J-K, U.P., W. Bengal and Madras.

Further, we may refer to the three columns of the above table giving absolute size of city populations in different states. It will be seen that the national aggregate had expanded from only 6 million in 1901 to 9 million in 1931 and further to 38 million in 1961. Simultaneously, the range of inter-state variation in the size of city population was lengthened. In 1901 the range for the 13 states extended from 123,000 in J K to 1,286,000 in U.P. For 1931, with the inclusion of Kerala, we have 14 states; the size of their city population varied from 160,000 in Bihar to 1,905,000 in Maharashtra, while in 1961 the number of States increased to 16, and the range of variation among them extended from 146,000 in Orissa to 7,251,000 in Maharashtra. To further highlight these inter-state differences in the size of city population we express the city population in each state as a percentage of the national aggregate as follows:

Table 32: Per cent distribution of city population in India by states, 1901, 1931 and 1961

	1901	1931	1961
A.P.	7.2	4.9	7.0
Assam	—	—	0.5
Bihar	2.2	1.7	4.4
Gujarat	6.6	4.5	6.1
J-K	2.0	1.3	1.0
Kerala	—	2.3	2.6
M.P.	2.2	4.2	4.7
Madras	12.1	13.2	9.7
Maharashtra	18.4	20.1	19.0
Mysore	2.6	5.7	5.7
Orissa	—	—	0.4
Punjab	2.6	2.8	3.2
Rajasthan	2.6	2.8	3.3
Uttar Pradesh	20.6	16.1	13.5
W. Bengal	17.5	15.2	12.7
Delhi	3.4	4.7	6.2
	100.0	100.0	100.0

The range of variation in state proportions of the national aggregate does not appear to have significantly changed during the period. The impact of the inter-state differentials in growth rates on the relative shares of different states is, however, revealed by a comparison of the three sets of distributions given above. The redistribution as shown by the comparison of 1931 with 1901, involved a reduction in the share for six states and an increase for eight states. Amongst the former six, the reduction was the largest for U.P. and was sizable also for W. Bengal, A.P. and Gujarat. The largest increase amongst the latter eight states was claimed by Mysore and the second largest accrued to Kerala, where the city

population had emerged during the first phase. Between 1931 and 1961, the share of Mysore remained unchanged; while the declining trend had affected five states, led by Madras in the first and U.P. in the second place and the increasing trend had affected the remaining ten states, among whom the notable increases had occurred in Bihar, Delhi, A.P. and Gujarat.

For the period as a whole the redistribution effect involved an interchange of 16 percentage points between the states with declining proportion and those with the increasing ones. The decreasing trend was shared by six states and the increasing one by the remaining ten states. The reductions in the proportion were substantial for the states with comparatively larger shares in the initial national aggregate of 1901, with the only exception of Maharashtra. For U.P., the state with the largest share in 1901, the reduction amounted to 7.1 points from 20.6 per cent to 13.5 per cent. For W. Bengal, it was 4.8 points and for Madras, 2.4 points. In the exceptional case of Maharashtra, which had claimed the second largest share in the 1901 national aggregate, there was a slight improvement and the state came to occupy the first position in the order of importance for 1961. Among the ten states showing improvement in their shares, the increase at the maximum amounted to only 3.1 points for Mysore, while it was comparatively larger also for Delhi, Kerala, M.P. and Bihar than for the remaining five states. In respect of Bihar, it may perhaps be noted that it had claimed by far the highest rate of growth among the states but the increment in its share of the national aggregate is not so impressive, the reason being that the size of the city population initially was comparatively very small.

We may also take note of the changes during the period in the status of city population within each state. In the light of our earlier reference to this aspect of the growth process at the national level, we give below for each state the two variables used there, namely, the proportion of the city to the urban and to the total population.

The two sets of figures given above yield the same impression, namely, there was during the period a general and progressive rise in the relative importance of city populations. The Delhi territory attracts notice in this connection for the fact that there obtained in the territory no urban population apart from that of the Delhi town group. The dominance of this town group, in the

Table 33: City population as % (i) of urban and (ii) of total population in each state—1901, 1931 and 1961

	As % of urban population			As % of total population		
	1901	1931	1961	1901	1931	1961
A.P.	24.4	17.3	42.7	2.4	1.9	7.4
Assam	—	—	22.3	—	—	1.7
Bihar	12.3	11.2	43.1	0.5	0.5	3.6
Gujarat	20.1	18.1	43.5	4.5	3.7	11.2
J-K	77.2	54.9	67.1	5.7	6.5	11.2
Kerala	—	23.9	39.3	—	2.3	5.9
M.P.	9.5	22.2	39.1	0.8	1.8	5.6
Madras	27.6	29.8	41.3	3.9	5.4	11.0
Maharashtra	35.6	40.3	65.0	5.9	8.0	18.3
Mysore	9.9	24.2	41.3	1.2	3.7	9.2
Orissa	—	—	13.2	—	—	0.3
Punjab	10.4	14.9	29.7	1.2	1.9	6.0
Rajasthan	10.3	15.3	37.8	1.6	2.2	6.2
U.P.	23.9	27.5	54.4	2.6	3.1	7.0
W. Bengal	52.8	40.1	56.5	6.5	7.7	13.8
Delhi	100.0	100.0	100.0	52.8	70.3	88.7
India	22.9	27.4	48.4	2.6	3.4	8.7

territory progressively increased during the period, with the result that its rural content remained in 1961 to constitute a small minority of only 11 per cent of the total population.

For the rest, the attention may be confined to the first set of figures relating to the proportion of the city to the urban population. At the national level, this proportion had risen from 22.9 per cent in 1901 to 27.4 per cent in 1931. The increasing trend was shared by seven states, among whom the improvement was substantially large for Mysore, M.P. and Kerala. The remaining

five states recorded varying amounts of decrease in the proportion; comparatively larger reductions accrued in J-K and W. Bengal. Between 1931 and 1961, the improvement was quite sizable at the national level and the increasing trend was entirely general. The gain at the national level measured 21.0 points. Among the states, it varied from a maximum of 31.9 points for Bihar to a minimum of 11.5 points for Madras. U.P. occupied the second place in the order of importance here with a gain of 26.9 points, while at the other end of the order, Orissa preceded Madras with a gain of 13.2 points.

For the period as a whole, comparison between 1961 and 1901 indicates the gain to have amounted to 25.5 points at the national level. Among the states, we have the exceptional case of a reduction in the proportion for J-K, which amounted to 10.1 points. For the other states, the gain varied from 3.7 points for W. Bengal to a maximum of 39.3 points for Kerala. While at the lower end of the order of importance, West Bengal was preceded by Orissa with a gain of 13.2 points, at the other end we have several states with their gains close to the maximum, namely, Mysore, Bihar, U.P., M.P. and Maharashtra.

Finally, we may see how the proportion had varied from state to state in each of the three years to which the data of the above table refer. In this respect, the progressive increase in the weighted average of state proportions as given by the proportion for the country as a whole is indicative of a progressive decrease in the amount of inter-state variation in the proportion. Computing, for the fifteen states, with the exclusion of the rather exceptional case of Delhi, a crude index represented by the ratio of the range of variation to the national average, it is revealed that the ratio had decreased from a level of 3.3 in 1901 to 2.2 in 1931 and further to 1.1 in 1961. In the latter year, with the national average at 48.4 per cent, the range extended from 13.2 per cent in Orissa to 65.0 per cent in Maharashtra and further to 67.1 per cent in J-K. We have here in all four states, the above two, U.P. and West Bengal, in whose case the city population formed in 1961 a majority within the urban population. In eight other states it constituted a substantial minority, claiming around 40 per cent of the urban population. There remain thus only the three states of Punjab, Assam and Orissa, showing comparatively small proportions. In the case of Punjab, city population was conti-

nually reported in all censuses of the period; while for the other two, its emergence cannot be traced beyond the last two decades of the period.

Sex ratio

We may begin our examination of the variations in sex ratio, during this period of general growth in city populations, with a perusal of the ratios as reported by the different censuses of the period, which are reproduced in the following table.

Table 34: Sex ratios of city populations in States, 1901-1961

	1901	1911	1921	1931	1941	1951	1961
A. P.	931	937	936	886	921	983	942
Assam	—	—	—	—	—	—	620
Bihar	1011	922	824	731	770	826	776
Gujarat	920	874	803	838	774	834	813
J-K	871	848	850	826	839	853	842
Kerala	—	—	—	919	944	952	958
M.P.	869	796	770	771	776	867	813
Madras	996	964	946	941	944	943	929
Maharashtra	700	610	613	649	681	705	747
Mysore	962	938	897	898	906	916	896
Orissa	—	—	—	—	—	755	722
Punjab	743	719	685	666	697	774	794
Rajasthan	910	935	771	832	849	897	859
U.P.	860	809	765	756	750	786	798
W. Bengal	526	502	492	483	476	600	638
Delhi	817	740	672	670	677	754	777
India	785	730	709	724	721	789	799

It will be seen that among the 98 sex ratios of city populations in the states, presented above, there is only one, which indicates an excess of females. The excess is quite small and it relates to a small fraction of the national aggregate claimed in the earliest of the censuses covered above by Bihar. The rest of the ratios indicate varying degrees of female deficiency in the population. The smallest of these ratios at the other end of the range indica-

tes that in the city population of W. Bengal in 1941 there were for every 100 males only about 48 females.

It is also apparent that in each of the states, the ratio had kept on changing from decade to decade all through the period. We can in fact derive from the table as many as 82 figures to represent decennial changes in the ratio, 39 of these numbers to represent an increase and 43, to represent a decrease in the ratio. The largest decrease amounts to 164 points for the city population of Rajasthan during 1911-21 and the largest increase, to 124 points for the city population of West Bengal during 1941-51.

A comparison of these decennial changes in the ratio with the corresponding variations in the size of city populations, discussed earlier, does not suggest that there obtained any correlation between the two. The changes in the sex ratios are indicative of the persisting sex differentials in the rates of growth but they do not seem to be related either to the size of initial population or to the quantum or the rate of its variation. It is apparent that the reduction in sex ratio has been much more frequent than the decrease in the size of the population. There have been only seven instances of a decrease in city population during a decade; five of them relate to 1901-11 and the other two, to 1911-21. In six of these instances, the decrease in population was accompanied by a reduction in its sex ratio, while in the remaining case, the ratio showed a sizable increase. As for the more numerous instances of increase in population, 38 of them were accompanied by an increase and 37, by a decrease in the ratio.

It may be noted, however, that by and large, the trend of decline in sex-ratio dominated the earlier and the one of an increase, the later decades. This results in a rather sharp contrast in the behaviour of the sex ratio as between the two phases of growth of city population into which we divided the period for our earlier discussion. In the first phase of comparatively slow growth of population, the decrease in the ratio was common to all states, without any exception. At the national level, the decrease amounted to 61 points, while amongst the states it varied from only 43 points in W. Bengal to as much as 280 points in Bihar. The terminal year 1931 of this phase, recorded the lowest of the ratios during the period in seven of the thirteen states.

In the second phase, marked by an acceleration of the growth process, the predominant trend was one of increase in the sex

ratio. The ratio of the national aggregate increased by 75 points, while varying amounts of increase are reported for all except three states. The range of variation in the ratio over the three decades of the phase extended from a decrease of 25 points in Gujarat to an increase of 155 points in W. Bengal. Notable increases in the ratio amounted to 128 points in Punjab, 107 points in Delhi and 98 points in Maharashtra.

Of the three decades of the second phase, 1941-51 stands out as recording at the national level the largest amount of increase in the ratio. It happens to be the decade showing the largest amount of change in the ratio among the six decades of the entire period. During the decade the increasing trend was reflected in all but only one state, namely, Madras, where the ratio suffered a slight reduction. The next decade of 1951-61 presents by comparison quite a different picture. There was at the national level an increase in the ratio but only of 10 points. The increasing trend is shared by only six states, the remaining nine showing varying amounts of decrease. Notable decreases, among these states, were 5 points for M.P., 50 points for Bihar, 41 points for A.P. and 38 points for Rajasthan.

Comparison further between 1901 and 1961 shows that the increase in the ratio of the national aggregate amounted to only 14 points for the period as a whole. Among the thirteen states, for which such a comparison can be undertaken, only four recorded an increase; of 112 points in W. Bengal, 51 points in Punjab, 47 points in Maharashtra and only 11 points in A.P. Of the remaining nine states, the decrease in the ratio amounted, at the maximum to 235 points in Bihar, which, as noted earlier, showed a small excess of females in its city population of 1901. The second largest reduction amounted, however, to only 89 points in Gujarat. That these inter-state differentials in changes in sex ratio over the period are not statistically related to corresponding differentials in the rates of growth can be seen from the following table which places the two sets of variations side by side.

We have here four states showing an increase in sex ratio over the period. The largest increase among them is recorded by West Bengal and the smallest by Andhra Pradesh. Corresponding rates of growth in population for the period ranged from only 340 per cent for West Bengal to as much as 857 per cent for

Table 35: Per cent variations in size and sex ratio of city population in states between 1901 and 1961

	Size	Sex ratio
A. P.	+ 857	+ 1
Bihar	+1652	—23
Gujarat	+ 465	—10
J K	+ 224	— 3
M. P.	+1204	— 6
Madras	+ 394	— 7
Maharashtra	+ 534	+ 7
Mysore	+1246	— 7
Punjab	+ 647	+ 7
Rajasthan	+ 675	— 6
U. P.	+ 301	— 7
W. Bengal	+ 342	+21
Delhi	+1002	— 5
India	+ 513	— 2

Andhra Pradesh. Among the remaining nine states, the decrease in sex ratio ranged from only 3 per cent for Jammu-Kashmir to as much as 23 per cent for Bihar. The variation in the rate of population growth ranged among them from only 224 per cent for Jammu-Kashmir to as high as 1246 per cent for Mysore. If we take the states showing a rate of population growth to be smaller than for the country as a whole, it will be seen that only in one case there was a substantial increase in the sex ratio, the remaining three recording varying amounts of decrease in the ratio. Alternatively, taking the other nine states, showing higher rates of population growth, we have only three states recording an increase in the ratio, the remaining six recording varying amounts of decrease in the ratio. On the whole, it appears that the changes in the sex ratio of growing city populations over the period have not been significantly large. The two states of Bihar and West Bengal may all the same be treated as exceptions. In the former state, the ratio sharply decreased, during the first phase of the period, from its exceptionally high level of 1011 in 1911 to 731 in 1931, and improved thereafter to

820 in 1951, to decrease again to 776 in 1961. In the latter case of West Bengal, the ratio progressively decreased from 526 in 1901 to 476 in 1941 and then rose steeply to 600 in 1951 and further to 638 in 1961.

It may be interesting to see further if the inter-state variation in sex ratio of city populations had tended to change in amount during the period. In this connection, we will refer to Appendix B-10 (xiv) expressing the state ratios as relatives of the ratio for the national aggregate, taken to equal 100, and compare the range of their variation and mean deviation from the latter ratio as follows :

Table 36: Variation of sex ratio relatives for states, 1901-61

	Range of variation			Mean deviation
	Minimum	Maximum	Difference	
1901	67	129	62	16.0
1911	69	132	63	19.1
1921	69	132	63	15.1
1931	67	130	63	15.6
1941	66	131	65	16.1
1951	76	125	49	11.5
1961	78	120	42	9.6

It is clear that upto 1941, the differential changes in sex ratios of individual states for different decades did not involve any significant change in the amount of inter-state variation. The remaining two decades of the period are, however, marked by a strong tendency of decrease in this amount. In the result, the range of inter-state variation measured in 1961 only 42 points as against 65 points in 1941 and 62 points in 1901, while the mean deviation came in 1961 to only 9.6 points as compared to 16.1 in 1941 and 16.0 in 1901. It is significant that striking changes in the value of mean deviation had occurred in the two decades, showing comparatively large changes in the ratio for the national aggregate. In the first decade of the period, a reduction of 55 points in the national ratio was corresponded by an increase in the deviation from 16.0 to 19.1, while in 1941-51 an increase of 68 points

in the national ratio was accompanied by a reduction in the deviation from 16.1 to 11.5.

We may now pass on to consider the comparative position of the sex ratio of city population in relation to the ratios for the urban and the total population for each state. Following the procedure adopted in this connection in the discussion relating to the national aggregate, we may express the city ratios for each year in terms of percentages first of the ratio for the urban population and then of the ratio for the total population. The two sets of relatives for the three terminal dates of the two phases of the period are given in the following table.

Table 37: City S.R. as a percentage of (i) urban S.R. and (ii) total S.R. for states in 1901, 1931 and 1961

	% of U.S.R.			% of T.S.R.		
	1901	1931	1961	1901	1931	1961
A.P.	93.2	91.7	98.2	94.5	89.8	96.0
Assam	—	—	91.6	—	—	70.8
Bihar	101.4	89.9	97.5	95.9	73.5	78.1
Gujarat	93.2	89.7	90.7	94.5	88.7	86.5
J.-K.	107.7	105.4	99.8	98.8	95.5	95.9
Kerala	—	95.3	96.7	—	89.9	93.7
M. P.	92.7	88.4	95.3	87.8	79.2	85.6
Madras	95.0	94.4	96.5	95.4	91.6	93.6
Maharashtra	81.2	82.2	93.3	71.6	68.5	79.8
Mysore	98.6	96.9	98.1	97.9	93.1	93.4
Orissa	—	—	89.5	—	—	72.1
Punjab	89.4	90.6	97.8	87.6	80.2	92.1
Rajasthan	96.1	92.1	97.4	100.6	91.7	94.6
U. P.	93.8	93.7	98.3	91.8	83.6	87.8
W. Bengal	80.7	83.6	91.0	55.7	54.3	72.7
Delhi	100.0	100.0	100.0	94.8	92.8	99.0
India	86.3	86.4	94.6	80.8	76.2	84.9

It will be seen that the city ratio has been, as a rule, the smallest of the three ratios under consideration and that its divergence from the total ratio has generally been larger in amount than the one from the urban ratio. There are, however, a few excep-

tions, relating mostly to the series for 1901. In Rajasthan, the city ratio was in 1901 slightly larger than the total ratio, while in Bihar and, more conspicuously in J-K, it was larger than the urban ratio. The position of J-K is additionally notable for the persistence of such excess during the period. The excess was reported at each successive census upto 1961, when it was replaced by a small excess of the opposite kind. Apart from J-K and Rajasthan, the divergence of the city ratio in 1901 was larger from the urban than from the total ratio in three other states, namely, A.P., Gujarat and Madras.

For an idea further of the temporal variations in the amount of divergence of the city ratio from the other two in different states, we may derive from the above table three sets of differentials as shown below. The three sets relate to the period as a whole and its two phases and the differential is measured in terms of the number of points by which the value of the relative in question at a later date differed from the corresponding value at the earlier date.

Table 38: Variation in city S.R. relatives of (i) urban S.R. and (ii) total S.R.

States*	Urban S.R.			Total S.R.		
	1901-31	1931-61	1901-61	1901-31	1931-61	1901-61
A.P.	— 1.5	+ 6.5	+ 5.0	— 4.7	+ 6.2	+ 1.5
Bihar	—11.5	+ 7.6	— 3.9	—22.7	+ 4.6	—17.8
Gujarat	— 3.5	+ 1.0	— 2.5	— 5.8	— 2.2	— 8.0
J-K	— 2.3	— 5.6	— 7.9	— 3.3	+ 0.4	— 2.9
Kerala	—	+ 1.4	—	—	+ 3.8	—
M.P.	— 4.3	+ 6.9	+ 2.9	— 8.6	+ 6.4	— 2.2
Madras	— 0.6	+ 2.1	+ 1.5	— 3.8	+ 2.0	— 1.8
Maharashtra	+ 1.0	+11.1	+12.1	— 3.1	+11.3	+ 8.2
Mysore	— 1.7	+ 1.2	— 0.5	— 4.8	+ 0.3	— 4.5
Punjab	+ 1.2	+ 7.2	+ 8.4	— 7.4	+11.9	+ 4.5
Rajasthan	— 4.0	+ 5.3	+ 1.3	— 8.9	+ 2.9	— 6.0
U.P.	— 0.1	+ 4.6	+ 4.5	— 8.2	+ 4.2	— 4.0
W. Bengal	+ 2.9	+ 7.4	+10.3	— 1.4	+18.4	+17.0
Delhi	—	—	—	— 2.0	+ 6.2	+ 4.2
India	+ 0.1	+ 8.2	+ 8.3	— 4.6	+ 8.7	+ 4.1

*States with no city population in 1901 and 1931 are omitted.

The disparity between the city and total ratios at the national level had tended to increase in the first and to decrease in the second phase. The latter decrease was much more sizable and

so the city ratio came at the end of the period to be somewhat closer to the total ratio than at the beginning. The increasing trend of the first phase was shared by all states and by far the largest amount of increase was recorded by Bihar. The reduction in the disparity during the second phase affected all states, excepting only Gujarat, which showed instead a small increase. The amount of reduction varied from only 0.3 points in Mysore and 0.4 points in J-K to 11.3 points in Maharashtra, 11.9 points in Punjab and further to 18.4 points in W. Bengal. Over the period as a whole, the disparity had increased in eight states and decreased in the remaining six. The amount of variation ranged from a decrease of 17.0 points in W. Bengal to an increase in the disparity of 17.3 points in Bihar.

The disparity between the city and urban ratios has been comparatively smaller. Here too, the general trend was one of increase in the first and of decrease in the second phase. It is, however, notable that the increase in the disparity during the first phase was not shared by three important states; these showed varying decreases to such an extent that the net effect on the national aggregate was marginal. The reduction of the disparity in the second phase was common to all states, including J-K, where the relative was reduced so as to eliminate the exceptional excess of the city over the urban ratio. Among the other states, the amount of reduction ranged from only 1.2 points in Mysore to 11.1 points for Maharashtra, which happens to be the only state showing the reduction to be larger in amount than the one at the national level. Over the period as a whole, a substantial reduction had taken place in the amount of disparity at the national level. Nine states contributed to bring this about; among them, the amount of reduction was larger as compared to the one at the national level in Maharashtra, W. Bengal and Punjab. Of the three states, for which the disparity had in contrast increased, the increase amounted at the maximum to only 3.9 points for Bihar.

It is interesting also to refer to the fact that as between the two relatives noted above, the change during the period differed not only in amount but at times also in its direction. Over the period as a whole, the direction of change was the same for the two relatives in eight states but differed in the remaining four. Among the former-eight, J-K stands apart from others. Here, both

the relatives were reduced between 1901 and 1961 but the reduction in one case represents a decrease also in the disparity between the two ratios, namely, the city and urban ratios, the reason being that the former in 1901 was substantially larger than the latter ratio. The reduction in the other relative for this state meant, on the other hand, an increase in the disparity in common with the experience of the other states. Of the seven other states, revealing the direction to be the same for the two relatives, the disparities were reduced in four states and had increased in the remaining three. The amount of reduction is generally larger in relation to the urban ratio, while the amount of increase is larger in relation to the total ratio. There remain now the four states in whose case the direction of change is not the same for the two relatives. Their common experience over the period as a whole has been a reduction of the disparity in relation to the urban ratio, accompanied by an increase in the disparity relating to the total ratio. The former reduction happens to be the largest in U.P., and the latter increase in Rajasthan, among them.

Finally, we bring together in Table 39 (page 82) the indices of inter-state variations in the size and sex ratio of city population as obtained, at the end of the period, in 1961.

Apart from the one indicating the number of cities in each state, we have in the above table eight columns, presenting two sets of four series of figures each, one relating to the size of city population and the other to its sex ratio. Computation of correlation measures for any pair of series, one taken from each set, fails to yield any consistent relationship between the two variables; value of none of the correlation coefficients that can be so computed is large enough to be statistically significant even at a 10 per cent level.

We may, however, compare the different series for differences in the amount of inter-state variation. Coefficients of variation computed for this purpose reveal differentials, indicating the amount to be greater in respect of the indices of the size of population as compared to the corresponding values for the indices of sex ratio. The coefficient for absolute size of population given in col. 2 is 82.6 per cent as against only 12.1 per cent for the level of its sex ratio. The coefficients for cols. 4 and 5 are 32.8 per cent and 57.0 per cent respectively as compared to only 3.4 per cent and 32.6 per cent for cols. 8 and 9. It will be seen also

Table 39: Size and S.R. of city populations in states, 1961

	Size of city population					S.R. of city population			
	No. of cities	2 as % of				Sex ratio	6 as % of		
		Popula- tion (—000)	national total	urban population in the state	2 as % of total pop. in the state		S.R. at national level	U.S.R. in the state	6 as % of TSR in the state
	1	2	3	4	5	6	7	8	9
A.P.	11	2,677	7.0	42.7	7.4	942	118	98.2	96.0
Assam	2	203	0.5	22.3	1.7	620	78	91.6	70.8
Bihar	9	1,687	4.4	43.1	3.6	776	97	97.5	78.1
Gujarat	6	2,312	6.1	43.5	11.2	813	102	90.7	86.5
J-K	2	398	1.0	67.1	11.2	842	105	99.8	95.9
Kerala	4	1,003	2.6	39.3	5.9	958	120	96.7	93.7
M.P.	8	1,807	4.7	39.1	5.6	816	102	95.3	85.6
Madras	11	3,716	9.7	41.3	11.0	929	116	96.5	93.6
Maharashtra	13	7,251	19.0	65.0	18.3	747	94	93.3	79.8
Mysore	6	2,173	5.7	41.3	9.2	896	112	98.1	93.4
Orissa	1	146	0.4	13.2	0.8	722	90	89.5	72.1
Punjab	5	1,214	3.2	29.7	6.0	794	100	97.8	92.1
Rajasthan	6	1,242	3.3	37.8	6.2	859	108	97.4	94.6
U.P.	17	5,160	13.5	54.4	7.0	798	100	98.3	87.8
W. Bengal	11	4,829	12.7	56.5	13.8	638	80	91.0	72.7
Delhi	1	2,359	6.2	100.0	88.7	777	97	100.0	99.0
India	113	38,177	100.0	48.4	8.7	799	100	94.6	84.9

that the differential between the former two (as measured by the ratio of col.5 to col.4) is only a fraction of the corresponding differential between the latter two (cols. 8 and 9). The latter two present in fact the most striking contrast indicating clearly that the inter-state variation in the disparity in sex ratio between the city population and the total population is many times larger than the corresponding disparity between the city and urban population. In any case, the relative expressing the city sex ratio as a percentage of urban sex ratio exhibits the least amount of inter-state variation among the different variables presented in the table.

Confining attention to the level of sex ratio as given in col. 6 of the table, it will be seen that the range of inter-state variation measures 338 points, from 620 in Assam to 958 in Kerala. An interesting feature of the arrangement of the states in an ascending order of importance according to the level of their sex ratio, is that the national level of 799 divides them into two almost equal parts; eight states accounting together for 49.9 per cent of the national aggregate of city populations have sex ratios lower than of the national aggregate. The difference in the level of sex ratio between two successive states in the order is by far the largest for W. Bengal and Orissa, occupying the second and third places in the order. It is also sizable for Rajasthan and Mysore at the other end of the order in the twelfth and thirteenth places respectively. The range of variation for the ten states from Orissa to Rajasthan in the order, accounting for 62.8 per cent of the national aggregate, measures only 137 points, from 722 for the former to 859 for the latter state. It is clear thus that the bulk of the range of variation arises from the sharp contrast in the level between the states placed at the two extremes of the order.

The geographical location of the states at the two extremes of the order is also notable. The states at the higher end of the order are all located in the south and those with lower ratios are from the east. This contrast between the southern and eastern states is clearly reflected in the comparative position of the zones, into which the 1961 census has divided the country. This may be shown by abridging the above Table 38 to represent the position of the zones as in Table 40 (page 84).

For the indices of sex ratio, the three zones—western, central and northern, do not reveal sharp differentials. The western

Table 40: Size and S.R. of city population in census zones, 1961

Col. no. of Table 38.	Population					Sex Ratio			
	1	2	3	4	5	6	7	8	9
Eastern	23	6,866	18.0	46.8	6.0	671	84.0	90.9	71.1
Western	19	9,622	25.1	58.0	15.9	771	96.5	86.8	82.2
Central	25	6,967	18.2	49.4	6.6	803	100.5	97.2	87.1
Northern	14	5,213	13.7	50.2	10.9	805	100.8	96.9	91.5
Southern	32	9,569	25.0	41.3	8.7	928	116.1	97.5	94.1
India	113	38,177	100.0	48.4	8.7	799	100.0	94.6	84.9

among them departs from the national position to a larger degree and it records the largest amount of disparity between city and urban sex ratios; of the two states constituting the zone the major part of these deviations are accounted for by Maharashtra, the state which claims the largest share in the national aggregate.

The contrast between the remaining two zones is quite conspicuous in respect of all the indices of sex ratio. The deviation of their sex ratios from the national level is of equal degree but contrary in direction. The disparity of the city ratio from the urban and total ratios is of the same kind for both but in extent it is much larger for the eastern than for the southern zone. In any case, the deficiency of females in the population is the largest in the cities of the east and the least in those of the south.

CHAPTER FIVE

SIZE OF CITIES

In dealing with cities as individual communities, it may be emphasised that the term 'city' is conventionally used only in respect of the places that are included under the first of the six size classes of towns discussed earlier. In effect, the criterion used for classifying a place as a city relates, therefore, only to the size of its population. The only requirement of a place for being so classified as a city is that it should have at the minimum a population of 100,000 persons. So defined, the cities differ from one another in size, sex ratio and most other characteristics of their population.

The data relating to the size and sex ratio of individual cities are available for all the census years of the period. In respect of other characteristics, both the availability and inter-census comparability of the data are, however, limited. Accordingly, we will continue to focus attention mainly on the variations in the size and sex ratio of population. This will enable us to identify individual cities in whose case sex disproportion is relatively large in degree. Thereafter, we will consider in some detail the position of individual cities, as reported by the 1961 census, in order to have a comparative idea of some of the relevant population characteristics as between cities with differing sex ratio levels.

As noted earlier, the census of 1961 classified some 113 places as cities under urban class I. Among them, we have 65 towns and 48 town groups. The basis for the classification in the case of a 'town group' was the total population of the towns taken to constitute the group. Of these town groups, however, 38 contained a city each and two other town groups had two cities* each, while none of the remaining eight groups** had any city amongst their constituent towns. Thus, if the classification is based on the size of individual towns, without grouping them in any way, the total number of cities comes to 107. We have in effect two

*Delhi-New Delhi and South Suburban—Garden Reach town-group.

**Dhanbad-Jharia-Sindri; Palayam-Cottai; Monghyr-Jamalpur; Durg; Sangli; Kurichi; Sagar and Shillong.

sets of cities, the first comprising 113 towns and town groups and the second, 107 towns. The data pertaining to the size and sex ratio and also a few other characteristics are available for the first set but for other characteristics covered by the census, the data relates only to the second set. Accordingly, while focussing attention on the 113 cities of the first set, we will have occasion to refer to the second set in respect of a few characteristics, for which the data are not available for the town groups included in the first set.

Variation in the aggregate city population

We may begin the discussion relating to the size of individual cities with a brief reference to their aggregate population. The aggregate population of cities had increased in each successive decade of the period on account first, of the growth of population in the existing cities, i.e. the places which enjoyed the status of a city in both the terminal years of the decade and second, of the emergence of new cities in the course of the decade i.e. places which were classified as cities at the end but not at beginning of the decade. There are, on the other hand, a few instances where the place in question was classified as a city at the beginning but not at the end of the decade, its population having experienced during the decade, a decrease to a level below the requisite minimum of 100,000 persons. Such a declassification had the effect of reducing the volume of decennial increase in the aggregate population. In the light of these factors affecting the growth of the aggregate population, we indicate in Table 41 how the net increase in the aggregate had accrued in each decade of the period.

The declassification of cities was encountered in two of the six decades of the period; first in 1901-11 and then in 1921-31. The two cities declassified in 1911 were Gwalior and Baroda. Together they accounted for over 4.0 per cent of the aggregate population in 1901. As against this, the aggregate had increased between 1901 and 1911 by 6.3 per cent on account of the growth of the existing cities and further by 1.6 per cent on account of the emergence of Jabalpur as a new city. The net decennial increase amounted thus to over 3.9 per cent in 1901-11.

The only city to be declassified in 1931 was Surat, which had claimed a share of 1.5 per cent in the aggregate population of 1921. The increase in the population of the existing cities during

Table 41: Variation in aggregate population of cities, 1901-1961

	1901	1911	1921	1931	1941	1951	1961
1. No. of cities	26	25	31	36	55	82	113
2. Aggregate population (—000)	6,225	6,472	7,593	9,498	16,004	26,426	38,177
3. Decennial increase (—000)	—	247	1,212	1,905	6,506	10,422	11,751
4. Decennial increase (%)	—	3.9	17.3	25.1	68.5	65.1	44.5
5. No of existing cities	—	24	25	30	36	55	82
6. Increase in population of 5 (—000)	—	388	468	1,371	4,162	7,151	8,079
7. No. of new cities	—	1	6	6	19	27	31
8. Population of 7 (—000)	—	101	653	651	2,344	3,271	3,672
9. No. of cities deleted	2	—	1	—	—	—	—
10. Population of 9 (—000)	242	—	117	—	—	—	—

the decade amounted to 18.0 per cent, while the 1931 population of the new cities measured 8.6 per cent of the 1921 aggregate. The net decennial increase in the aggregate amounted, therefore, to as much as over 25.0 per cent in 1921-31.

Apart from this, it will be seen that the volume of increase in the aggregate population exhibits a clear trend of progressive enlargement through the entire period. The volume of increase measured in the final decade more than four times the corresponding increase for the first decade. The rate of growth, however, reveals progressive increase only upto 1941. It rose from only 3.9 per cent in 1901-11 to 17.3 per cent in 1911-21 and reached a peak of 68.5 per cent in 1931-41. Thereafter, it suffered a decline to 65.1 per cent in 1941-51 and further to 44.5 per cent in 1951-61.

Of the two factors of growth of the aggregate population, namely, the increase in the population of existing cities and the emergence of new cities, the share of the former in absolute terms recorded a steady and progressive increase during the period from 388,000 to 8,079,000, while the share of the latter registered a slight decline from 653,000 in 1911-21 to 651,000 in 1921-31 and rose sharply thereafter to 2,344,000 in 1931-41.

It will also be seen that the contribution of new cities to the growth of the aggregate had been more substantial than that of the existing cities only in one decade, 1911-21. For the rest, the share of the existing cities was consistently larger. Of the combined volume of increase the existing cities claimed 79 per cent in 1901-11 and 72 per cent in 1921-31. This proportion was reduced thereafter to 64 per cent in 1931-41 but rose again to 69 per cent in 1941-51 and also in 1951-61.

Further, both the number and the aggregate population of cities experienced a continual increase during the period, the latter from its beginning and the former from 1911 onwards. In the later decades of the period, the aggregate had tended to grow at a comparatively faster rate and so the average size of cities recorded a progressive increase from around 245,000 for the 31 cities of 1921 to over 338,000 for the 113 cities of 1961.

Size classification in earlier censuses

To proceed with the analysis of the process of population growth, as experienced by the individual communities which

came to be classified as cities in 1961, we may refer first to their classification according to size in the previous censuses of the period, as shown below :

Table 42 : Size classification of the towns and town groups classified as cities in 1961, for the previous census years of the period

Size class	1961	1951	1941	1931	1921	1911	1901
I	113	82	55	36	31	25	26
II	—	29	46	51	40	36	36
III	—	2	11	21	35	40	36
IV	—	—	1	4	6	8	9
V	—	—	—	—	1	2	1
VI	—	—	—	—	—	—	—
Nil	—	—	—	—	—	2	5
Total	113	113	113	113	113	113	113

As noted earlier, three cities from among the 26 in the list of 1901, had experienced a decrease in population in the course of the period, which had led to their declassification but they all had re-acquired the status of a city subsequently during the period and they are all included in the set of 113 cities of 1961.

The entry in the last row in the column for 1901 in the above table relates to places which were not then included in the urban sector and for which data on the size of population are not available. These five are the town groups of Jamshedpur, Durg, Kharagpur, Dhanbad-Jharlia and Kurichi. The first three of these places entered the urban sector in 1911 and the last two, in 1921. Jamshedpur among them was the first to acquire the status of a city. On its entry into the urban sector in 1911 Jamshedpur was classified under class V with a population of only 5,672. In the course of the following decade of 1911-21, its population grew phenomenally, enabling it to skip two intermediate size classes and enter class II in 1921, with a population of 57,360. Rapidity of the growth process was maintained through the next two decades and it graduated to class I in 1941 with a population of 165,395. Kharagpur, among the remaining four, became a

city in 1951 and the other three, in 1961. Of the latter three, the case of the Durg town group, which includes the new steel town of Bhilai-nagar, is notable. The growth of this town group was very gradual upto 1951, its population having risen in the course of the preceding four decades by only 13,201. In contrast, the increase in the last decade amounted to 120,715, leading to its entry into class I in 1961 directly from class III in 1951.

Apart from the above five, there are in all 82 places which graduated to class I in the course of the period. Bulk of them were classified under class II and III in 1901, a few, under class IV and one, under class V. In general, the lower the size class in which it was classified in 1901, the longer it took the place to emerge, during the period, as a city. The one place in class V and seven of the nine places in class IV in 1901 became cities only in 1961. The remaining two of class IV became cities in 1951. Of the 36 places in class III, seventeen became cities in 1961, fifteen, in 1951 and the remaining four, in 1941. It may be added that the growth of their population was in general gradual and involved skipping of an intermediate size class between two censuses only in two cases, namely, Kalyan and Gauhati. Both of these places were in class IV in 1901 and they moved up to class III in 1931; thereafter Kalyan moved up from class III directly to class I between 1941 and 1951 and Gauhati, did so between 1951 and 1961.

There remain 36 places classified in 1901 under class II, in the population range of 50,000 to 100,000. Their graduation was spread over the entire period; only one of them entered class I in 1911 and three others did so as late as in 1961. Prior to their emergence as cities, seven of these places had, however, suffered a decrease in their population which had resulted in their relegation to class III; five suffered such a decrease in 1901-11, one in 1911-21 and the remaining one in 1921-31. Subsequently, each of these places, excepting the South Suburban town group, reverted to class II before entering class I. In the case of the South Suburban town group the said decrease of 1921-31 was followed in the very next decade by a very substantial increase, which led to its inclusion under class I in 1941.

Rate of population growth

For a detailed consideration of inter-city differentials in population growth, attention will be directed mainly to decennial rates

of variation in population, expressed in percentage terms. For this purpose we will have a chronological review of the differentials for different decades of the period, for the two phases into which we have earlier divided the period—1901-31 and 1931-61, and then for the period as a whole. In view of the large inter-city differentials in the size of population itself, the discussion relating to the rates of growth will then be supplemented by a reference to the volume of increase or decrease in population in absolute terms.

A summary view of the period indicates that it was on the whole a period of continual increase in the population of cities. The aggregate population of all places, which constituted the set of cities in 1961, as also of the sub-set comprising the 26 cities of 1901, recorded an increase in each decade of the period, as shown below.

Table 43: Variation in aggregate population of the 26 cities of 1901 and of the 113 cities of 1961

Year	Cities of 1901			Cities of 1961		
	Population (—000)	Variation (—000)	increase %	Population (—000)	Variation (—000)	increase %
1901	6,225	—	—	10,083	—	—
1911	6,555	330	5.3	10,569	486	4.8
1921	7,039	484	7.4	11,630	1,061	10.0
1931	8,285	1,246	17.7	13,964	2,334	20.1
1941	12,110	3,825	46.2	19,721	5,757	41.2
1951	17,957	5,847	48.3	28,769	9,048	45.9
1961	23,409	5,452	30.4	38,177	9,408	32.7

There obtains quite a close similarity between the two series of variations given in the above table. Both the set of 113 cities of 1961 and its sub-set of 26 cities of 1901, exhibit not only continuous growth all through the period but also an acceleration of its rate upto 1951. The acceleration appears, however, to have been comparatively more pronounced for the sub-set, particularly during 1931-41.

The volume of decennial increase shows progressive expansion for the set all through the period and for the sub-set upto 1951. The share claimed by the sub-set in the volume of increase had suffered a reduction from 68.1 per cent in 1901-11 to 45.6 per

cent in 1911-21. Thereafter, it rose to 66.4 per cent in 1931-41 but was reduced again to 58.0 per cent in 1951-61. The consequent variations in the proportion claimed by the sub-set in the aggregate population of the set do not appear, however, to be striking. From 61.7 per cent in 1901, this proportion moved upto 62.0 per cent in 1911, declined to 59.3 per cent in 1931, rose again to 62.4 per cent in 1951 and was once again reduced to 61.3 per cent in 1961. Over the period taken as a whole, the aggregate population of the set had increased by 28.1 million, of which 17.2 million, or 61.2 per cent, represented the increase in the total population of the sub-set. In the result, the variation in the proportion claimed by the sub-set in the population of the set—amounted to only 0.4 percentage points between 1901 and 1961.

To take up individual cities now, it may first be noted that continuity of growth, similar to the one exhibited by the above noted aggregate population, was shared by as many as 56 of the 113 places which were classified as cities in 1961; ten of these belong to the sub-set of 26 cities of 1901. 21 of the other 57 places in the set witnessed continuous growth from 1911, 28 from 1921 and 4 from 1931 onwards. There remain only 4 places, each of which experienced a decrease in one of the remaining three decades of the period.

We may also mention that 36 of these 57 places recorded a decrease in population in only one of the six decades; 21 of them in 1901-11, 13 in 1911-21 and 1 each in 1921-31 and 1941-51. 20 others recorded a decrease in two of the six decades; 15 of them in 1901-11 and 1911-21, 2 in 1901-11 and 1921-31, 2 in 1901-11 and 1941-51 and the remaining 1 in 1921-31 and 1951-61. We are left thus with only one place, Rampur, in whose case the decrease was more frequent; for Rampur the first three decades recorded successive decreases and the last three, successive increases in population.

Taking the period as a whole, we obtain a total of 671 entries indicating decennial variations in the population of the 113 places in the set for the six decades of the period. Only 79 of these entries represent a decrease in population; as many as 75 of these entries relate to the first phase and only 4, to the second phase of the period. None of these places recorded any decrease in population for the second phase or for the period, taken as a whole, while

over the first phase, 11 places had experienced a decrease in population.

While the growth of population was generally shared by the places in the set, its tempo did vary in each decade from place to place. In order to indicate how large these inter-city differentials were in each decade, we distribute the cities of 1961 over a selected number of intervals of the range of variation in the percentage rate of decennial variation in population as follows:

Table 44: Distribution of places classified as cities in 1961 according to per cent rate of decennial growth in population, 1901-11 to 1951-61

Rate %	1901	1911	1921	1931	1941	1951	Average		
	-11	-21	-31	-41	-51	-61	1901 -31	1931 -61	1901 -61
Decrease									
50-75	1	—	1	—	—	—	—	—	—
25-50	6	1	—	—	—	—	—	—	—
10-25	11	7	1	—	1	—	—	—	—
5-10	8	5	—	—	1	1	3	—	—
0-5	15	17	2	—	1	—	8	—	—
Increase									
0-5	17	18	5	2	—	2	14	—	—
5-10	12	10	2	—	1	3	14	—	3
10-25	20	26	46	34	14	36	49	13	18
25-50	16	20	51	58	64	47	17	45	47
50-75	—	2	3	11	17	13	1	31	21
75-100	—	4	1	5	8	5	1	11	7
100+	2	1	1	3	6	6	1	13	12
N.A.	5	2	—	—	—	—	5	—	5
Total	113	113	113	113	113	113	113	113	113

Reference to the first part of the table indicates that negative growth became increasingly a rarer phenomenon with the passage of time. In the first decade of the period, a decrease in population was experienced by some 41 places, including 13 from the sub-set of 26 cities of 1901. The number was reduced to 30 in 1911-21 and further to only 4 in 1921-31. We have thus 75 entries indicating decennial decrease in population in percentage terms.

The highest of these was 51.1 per cent, reported for Mirzapur in 1901-11, followed by 50.0 per cent for the South Suburban town group in 1921-31, while in third place we have 44.6 per cent for Indore in 1901-11. The highest rate recorded for Muzaffarpur in 1911-21 was only 25.0 per cent. If we take the phase as a whole, the population was smaller in 1931, as compared to that of 1901, in respect of only 11 places, of which the four belonging to the sub-set were Surat, Jaipur, Gwalior and Varanasi. The rate of decrease for the phase varied among these eleven places from 27.6 per cent for the South Suburban town group to only 1.4 per cent for Udaipur.

In the second phase, the decrease in population remained clearly an exceptional occurrence. We have three instances in 1941-51 and only one such instance in 1951-61. Of the three instances for the former decade, the rate of decrease was 14.0 per cent for Amritsar, 8.0 per cent for Bikaner and 4.8 per cent for Shahjahanpur; these, incidentally, were amongst the foremost of the places, that were affected by the population movements caused by the partition of India in 1947. The only place to record a decrease in population in 1951-61 was the Kolar Gold Fields, the city which had come to depend rather heavily on the sole activity of gold mining.

From the second part of the table, indicating positive growth, it is clear that in the course of the period, the spread of the distribution had tended to narrow down but at the same time, the relative importance of higher intervals had tended to increase. The largest frequency was recorded by the 10-25 interval in the first two, and by the 25-50 interval in the next four decades of the period. The combined frequency of these two intervals progressively increased from 38 in 1901-11 to 92 in 1931-41. Thereafter, it was reduced to 78 in the favour entirely of the higher intervals but was raised again to 83 in 1951-61. Correspondingly, the combined frequency of the two lower intervals was reduced from 29 in 1901-11 and 28 in 1911-21 to 6 in 1921-31, 2 in 1931-41 and further to 1 in 1941-51.

Attention may also be directed to the highest open-ended interval, which claims an entry in each of the six decades of the period. Its frequency rises conspicuously from only 1 in 1921-31 to 3 in 1931-41 and further to 6 in 1941-51 and also 1951-61. For the six decades, we have in this interval in all 19 values repre-

senting varying rates of decennial growth. Arranging them in the order of magnitude, we have in the first place 911 per cent in 1911-21 for the then new steel town of Jamshedpur and in the second place, 558 per cent in 1951-61 for the Durg town group, now dominated by the new steel township of Bhilai-nagar. Notable among the other entries, are 361 per cent for Warrangal in 1901-11, 346 per cent for Kalyan in 1941-51, 276 per cent and 244 per cent respectively for the South Suburban and Kurichi town groups in 1931-41. The remaining 13 values are all below 200 per cent but two of them, 141 per cent in 1931-41 and 173 per cent in 1951-61, relate to the same place, namely, the Dhanbad-Jharia-Sindri town group, which experienced more than a doubling of its population twice in the course of the period.

Comparing the two distributions for the phases of the period, it is evident that the growth process was more general and much more pronounced in the second phase. The number of places recording an average decennial rate of 100 per cent or more is 13 for the second as against only 1 for the first phase, while the total number of places showing an average of more than 50 per cent is 55 as against only 3. For the period as a whole, we have 12 places with an average decennial rate of 100 per cent or more and 40 places in all with an average of 50 per cent or more. As compared to 1901, the population in 1961 was larger by 1708 per cent in Kalyan, 1389 per cent in Warrangal, 1127 per cent in Asansol and 1002 per cent in Delhi. Among the above 12 places with such high overall growth rates for the period, we have, apart from Delhi, only Bangalore from amongst the 26 cities of 1901; the population of Bangalore in 1961 was larger than that of 1901 by nearly 650 per cent.

The impression gained from a broad comparison of the frequency distributions for different decades, given in the preceding table, is one of progressive decrease in the amount of inter-city variation in the rates of population growth. This may be substantiated further by computing measures of dispersion in respect of each decade for the relevant series of individual rates of growth. Accordingly, we give in table 45 three series of coefficients of variation, computed by taking the rate of growth for the aggregate population of the places in question to represent the requisite mean value. The first two series are for the set, and the third, for the sub-set comprising the places, which, barring a few exceptions, have been

classified as cities in all the censuses of the period. The first series covers all the places in the set, while the second excludes for each decade a place or two, which had experienced exceptionally high rate of growth,* in order to avoid undue exaggeration of the values of the coefficient.

The exclusion of the rates showing maximum divergence from the mean values results, in each of the relevant decades, in a substantial reduction in the values of both standard deviation and coefficient of variation. The reduction of these values is the most pronounced for 1911-21 in which the excluded rate was as high as 911 per cent as compared to the mean value of only 10 per cent. Here the exclusion helps to reveal that inter-city variation was in fact much smaller in 1911-21 than in 1901-11, in contrast to the increase shown by the first series for the set.

Apart from this, the trend of change in the variation indicated by the coefficients in the two series is broadly the same. In the course of the first four decades of the period, for which the mean values reveal a pronounced acceleration of the growth process, the amount of variation was greatly reduced; the value of the coefficient in each series for 1931-41 being reduced to just over a tenth of the corresponding figure for 1901-11. Thereafter, there followed in 1951-61 some increase in the amount; this had accompanied a marked slowing down of the tempo of the growth process, as shown by the reduction of the mean value from 45.9 per cent in 1941-51 to 32.7 per cent in 1951-61.

Comparison of the second series for the set with the one for the sub-set indicates that the variation had all along been smaller in amount for the sub-set; the divergence between the coefficients of the two series had, however, tended to progressively decrease in amount till it was entirely eliminated in 1941-51. For the remaining decade there obtains a marked contrast between the two series. The mean values indicate a slowing down of the growth process for both the set and the sub-set but the actual decline in the growth rate is larger for the sub-set. The

* The exclusion is limited to rates higher than 200 per cent and applies to all decades with the exception of 1921-31, the highest rate for which was 172 per cent. The excluded rates are 361 per cent for Warrangal in 1901-11, 911 per cent for Jamshedpur in 1911-21, 276 per cent for the South Suburban town group and 244 per cent for the Kurichi town-group in 1931-41, 346 per cent for the Kalyan town group in 1941-51 and 558 per cent for the Durg town group in 1951-61.

Table 45: Inter-city variation in per cent rate of decennial growth

	Cities of 1961						Cities of 1901		
	I			II			Mean	Standard deviation	Co-efficient
	Mean	Standard deviation	Co-efficient	Mean	Standard deviation	Co-efficient			
1901-11	4.8	40.7	848	4.7	22.1	491	5.3	14.6	276
1911-21	10.0	88.3	883	9.6	22.3	232	7.4	14.9	202
1921-31	20.1	19.2	93	20.1	19.2	96	17.4	15.9	90
1931-41	41.2	36.0	87	40.4	21.2	52	46.2	22.0	48
1941-51	45.9	37.5	82	45.4	24.9	55	48.3	26.5	55
1951-61	32.7	56.6	173	32.3	27.6	86	30.4	12.8	42

decade records a reduction in both standard deviation and coefficient of variation for the sub-set but an increase in both for the set. For the sub-set, this, among the decades of the period, records the lowest coefficient and also the smallest value for standard deviation.

Volume of growth

In carrying forward the analysis of the process of population growth we may first refer to inter-city variation in the volume of growth for each decade and then consider individual cities, which have prominently participated in the process of growth in terms of volume in the different decades and phases of the period. For the former purpose, we give below two series of coefficients of variation, one for the set and the other for the sub-set, corresponding to the series for the rate of growth, given earlier.

Table 46: Inter-city variation in the volume of population growth in each decade

	Cities of 1961			Cities of 1901		
	Mean	Std.	Coefficient	Mean	Std.	Coefficient
	(—000)	deviation (—000)	%	(—000)	deviation (—000)	%
1901-11	4	26	610	13	33	261
1911-21	10	28	291	19	52	280
1921-31	21	27	132	48	44	91
1931-41	51	105	206	147	187	127
1941-51	80	158	198	225	283	126
1951-61	83	147	176	210	265	126

The amount of variation indicated by the 'volume' coefficients has generally been greater than the one indicated by the 'rate' coefficients of table 45 for both the set and the sub-set. The differential has generally been smaller for the sub-set than for the set. Further, it is evident that the consistent decreasing trend of the variation up to 1951 noted earlier in respect of the rate of growth does not obtain in respect of the volume of growth. The coefficient for the set in the present case progressively decreases from the peak of 610 for 1901-11 to 132 for 1921-31 but

increases again to 206 for 1931-41; thereafter, the decreasing trend reappears to reduce the coefficient to 176 for 1951-61. For the sub-set there occurs first a contrasting rise from 261 for 1901-11 to 280 for 1911-21, followed by a steeper decline to 91 for 1921-31; thereafter, there is a sizable increase to 127 for 1931-41, and this level is approximately repeated in the remaining two decades. It will also be seen that the amount of variation in volume of growth has been consistently larger for the set than for the sub-set. The size of the differential between the two coefficients under comparison varied greatly from decade to decade. To begin with, it was drastically reduced from the peak of 349 points for 1901-11 to the lowest level for the period, measuring only 11 points for 1911-21. Thereafter, it rose in the course of the next two decades to 79 for 1931-41 but fell again to 50 points for 1951-61.

For a more detailed view of the inter-city variation in the volume of growth in each decade, we may again consider the frequency distribution of the places in the set over selected intervals of the overall range of variation according to the volume of growth recorded by each place in each decade.

Referring to the first part of Table 47 (page 101) indicating a decrease in population, we have in all 79 entries for the six decades of the period. Bulk of them relate, however, to the first two decades. The amount of decrease so indicated is less than 5,000 in 40 of these 79 cases, and it is less than 10,000 in all for 55 of them. The amount exceeds 25,000 on the other hand, for 7 of the remaining entries. Included against this open-ended interval; we have a decrease of 96,500, at the maximum, for Hyderabad in 1911-21; of 54,800 for Amritsar in 1941-51; of 54,100 for Gwalior; 48,000 for Nagpur and 43,700 for Indore in 1901-11; of 39,400 for the South Suburban town group in 1921-31; and of 33,700 for Mirzapur again in 1901-11. The first four of these places, showing outstanding amounts of decennial decrease in population, belong to the subset comprising the cities of 1901.

Notable feature of the other half of the table indicating positive growth is the progressive increase in the relative importance of the higher intervals of the range of variation. The trend is similar to the one revealed by the corresponding series of distributions given earlier in respect of the rate of growth and here it is comparatively more pronounced, especially for the three

Table 47: Distribution of places classified as cities in 1961 according to volume of decennial variation in their population

Range (—000)	1901-11	1911-21	1921-31	1931-41	1941-51	1951-61
Decrease						
25+	4	1	1	—	1	—
10-25	8	6	1	—	1	1
5-10	7	7	—	—	1	—
0-5	22	16	2	—	—	—
Increase						
0-5	31	31	9	3	1	—
5-10	13	19	24	15	—	—
10-25	14	16	50	39	25	21
25-50	6	8	18	33	44	37
50-75	1	6	3	9	19	23
75-100	1	—	1	2	7	8
100+	1	1	4	12	15	22
TOTAL	108	111	113	113	113	113

decades of the second phase. Combined strength of the three highest intervals indicating the volume to be greater than 50,000 increases progressively from only 3 in 1901-11 to 7 in 1911-21, to 23 in 1931-41 and to 53 in 1951-61.

The number of entries against the highest open-ended interval, of 100,000 or more, moves up from only 1 in 1901-11 and 1911-21, to 4 in 1921-31, 12 in 1931-41 and finally to 22 in 1951-61. The total number of entries in the interval for the six decades of the period comes to 55. These relate, however, to only 27 places in the set, of which 17 belong to the sub-set; the reason is that some 14 of these places experienced such a large volume of growth in more than one decade. Bombay, for example, recorded the volume of increase in its population to be much more than 100,000, in five out of the six decades of the period. Calcutta, Delhi and Madras reported such increases in four decades, while of the remaining ten, five did so in three and five in two of the six decades. Additionally, it may be noted that the entries against this interval accounted for only 24 per cent of the aggregate volume of growth for all the 113 places in

the set in 1921-31; this proportion rose to 55 per cent in 1931-41 and finally to 60 per cent in 1951-61.

Table 48: Distribution of the cities of 1961 and those of 1901 according to average volume of growth per decade for the period and its two phases

Range (—000)	Cities of 1961			Cities of 1901		
	1901-31	1931-61	1901-61	1901-31	1931-61	1901-61
Decrease						
5-10	4	—	—	2	—	—
0-5	7	—	—	2	—	—
Increase						
0-5	29	—	—	3	—	—
5-10	31	—	5	4	—	—
10-25	28	31	59	6	—	2
25-50	5	46	30	5	5	10
50-75	1	15	4	1	4	4
75-100	2	9	2	2	6	2
100+	1	12	8	1	11	8
TOTAL	108	113	108	26	26	26

With regard to the volume of growth, it is interesting further to compare the patterns of distribution for the set with the corresponding patterns for the sub-set, which, as noted earlier, comprises places that had already acquired the status of a city in 1901, and, barring a few exceptional cases of temporary declassification, had retained it all through the period. For this purpose, it is sufficient to direct attention to the volume of growth for the two phases of the period. Accordingly, we take the same intervals of the range as of the above table and distribute in Table 48 the two groups of places according to the average volume of growth per decade for the two phases and for the period as a whole.

About the 11 places recording a decrease in population in the first phase, it may be noted that the decrease was the largest in amount for Surat from the sub-set, the city which on that account was declassified by the census of 1931. It is also notable that the four places of the sub-set accounted for more than half of the aggregate decrease in population for these eleven places.

The rest of the table clearly reveals that the sub-set had all along dominated the process of growth, viewed in terms of volume.

Even in the first phase, for which the spread of the distribution is very wide, the higher intervals of the range are appropriated by the places in the sub-set. Indeed, for none of the 82 places, not included in the sub-set, the volume of increase averages more than 25,000 per decade for this phase. The largest volume of increase over the phase measured 455,394 for Bombay among the 26 places in the sub-set but only 63,435 for Bhatpara among the remaining 82 places in the set.

In the second phase, the higher intervals of the range include a few places from outside the sub-set; for one of them the volume of increase averages more than 100,000 and for 15 of the 82 places outside the sub-set the average exceeds 50,000 per decade. In the sub-set, none of the places recorded the average to be smaller than 25,000 and for as many as 11 of them the average was in excess of 100,000. Arranging the 12 places in the highest open-ended interval, in a descending order according to the volume of increase during the phase, it is found that the one place not included in the sub-set, namely, the South Suburban town group is placed at the bottom of the order, with an increase of 302,213 only. The increase at the maximum amounted to around 2.9 million for Bombay. For three other cities it exceeded a million; for Delhi it was 1.9 million; for Calcutta, 1.7 million and for Madras, just a little over a million. Other notable increases, ranging between half a million and a million, were recorded by Bangalore, Ahmedabad, Hyderabad and Kanpur.

For the period as a whole, the dominant participation of the cities in the sub-set in the process of growth, is apparent from the comparison of the distribution between the set and the sub-set. All the 14 places showing the average volume of increase to be greater than 50,000 belong to the sub-set. At the other end, none of the 5 places in the lowest interval covered by the distribution, and only 2 of the 59 places in the next interval of 10,000 to 25,000 are from the sub-set.

Further, for an idea of the role played by each city in the overall process of growth during the period as a whole, we arrange, In Appendix B-11, all the 113 places in the set in the order of importance according to the volume of increase in their population between 1901 and 1961. Between these two dates, the aggregate population of these places had increased from 10.1

million to 38.2 million, by 28.1 million persons. The 26 cities in the sub-set together accounted for 17.2 million or for 61.3 per cent of the aggregate volume of increase for the set.

The range of variation in the volume is indeed very wide; it extends from 3,339,144 for Bombay, occupying the first position in the order and claiming a share of 11.89 per cent of the aggregate increase to 139,661 for Bareilly from the sub-set, which is ranked 53rd with a share of 0.50 per cent only. It extends further to 34,026, at the lowest, for Mirzapur which claims about 0.13 per cent of the aggregate increase. The largest volume of increase is thus over 25 times the smallest for the sub-set and nearly a 100 times the smallest volume for the entire set.

The first 12 positions in the order are held by cities from the sub-set and they together account for 50.38 per cent of the aggregate volume of increase for the set, and for 82.17 per cent of the sub-aggregate for the 26 cities in the sub-set. The second position in the order of importance, after Bombay, is claimed by Delhi, with 7.64 per cent and the third, by Calcutta with 7.10 per cent of the aggregate. These three cities together account thus for 26.63 per cent of the aggregate and 41.81 per cent of the sub-aggregate. At the other end of the scale for the sub-set, Bareilly is preceded by Tiruchirapally and, in the next higher position, by Gwalior. The former claims in the 51st position a share of 0.52 per cent and the latter, in the 42nd position, of 0.58 per cent.

Among the 87 places outside the sub-set, the largest volume of increase amounts to 328,044, or 1.17 per cent of the aggregate, for Jamshedpur occupying the 13th position in the order. Of the rest, there are only 2 places, Indore and the South Suburban town group, in the 16th and 17th position respectively, in whose case the share measures more than one per cent of the aggregate. On the other hand, for as many as 60 of the remaining 84 places, this proportion amounts to less than half a per cent each and together they account for only about 20.0 per cent of the aggregate; 22 of these places, with less than 0.3 per cent each, claim only about 5.0 per cent of the aggregate. At the bottom of the scale, we have four places, including Mirzapur, whose share is less than 0.2 per cent each.

For a summary view of this arrangement of individual cities, we may finally note that the first three cities in the order claim

over a quarter of the aggregate volume of increase for the 113 cities in the set, and the next nine account for another about a quarter. The third quarter is, on the other hand, shared between 31 places and the fourth, between the remaining 70 places in all. It may be added that 12 of the former group of 31 places but only 2 from among the latter 70, belong to the sub-set.

Size of cities

The process of population growth, discussed above, had for each city involved a series of changes in the size of its population and the changes relating to individual cities together represented also a change, from one to the next census, in the amount of variation in size among the cities under consideration. In order to indicate the extent of such changes in inter-city variation in size from census to census, we give in Table 49 the three relevant series of coefficients. The first series relates to the sub-set of cities of 1901 and the third, to the set of cities of 1961. The second series covers a varying number of places, classified as cities in the different censuses; that is, its coverage for each year is limited to the places, from among those in the set, which had a population of 100,000 or more persons each.

Comparing the above with the corresponding series of coefficients given earlier for indicating inter-city variation in the rate and volume of population growth, it will be seen that in the first two decades the amount of variation was quite substantial in terms of both the rate and volume of growth but the change induced by the growth process in inter-city variation in size was not significantly large. The rate coefficient for the set for the first decade, for example, was as large as 491 per cent, while the change in the size coefficient over the decade amounted to only 8 points from 141 per cent in 1901 and 149 per cent in 1911. In contrast, the smallest of the rate coefficients, namely, 52 per cent for 1931-41, was accompanied by the largest change in the size coefficient, though it is true that this change amounted to only 13 points from 146 per cent in 1931 to 159 per cent in 1941. On the whole, it would appear that there obtained but little correspondence of trend over time between the series of size coefficients and the series of either the rate or the volume coefficients.

From the present table, it will be seen that in each year, the value of the size coefficient was among the three groups of cities,

Table 49: Inter-city variation in the size of population, 1901-1961

	I (cities of 1901)			II (cities of each year)			III (cities of 1961)		
	Mean (-000)	Range (-000)	Coefficient %	Mean (-000)	Range (-000)	Coefficient %	Mean (-000)	Range (-000)	Coefficient %
1901	239	829	87	239	829	87	93	924	141
1911	252	934	97	259	917	82	95	1,012	149
1921	271	1,150	101	246	1,144	113	103	1,235	157
1931	391	1,169	93	264	1,167	104	123	1,255	146
1941	466	2,014	87	291	2,064	124	175	2,150	159
1951	691	2,759	102	322	2,864	163	255	2,947	164
1961	900	3,903	104	338	4,052	161	338	4,052	161

the highest for the set and, barring 1911, the least for the sub-set. The differential in the value of the coefficient between the set and the sub-set varied from year to year but without exhibiting any clear trend over time. In terms of percentage points, this differential amounted to 54 points in 1901 and 53 points in 1931; thereafter, it increased rather sharply to 72 points in 1941 but was reduced again to 57 points in 1961. In any case, the two series indicate that the sub-set continued all through the period to account for a major part of the inter-city variation in size, displayed by the set as a whole.

The remaining series relates to a varying number of places from among those in the set. The number variation involved, however, a decrease only once; from 26 in 1901 to 25 in 1911 on account of the de-classification of two cities corresponded by the entry of only one new city in 1911. The co-efficient, it will be seen, recorded between these two dates a reduction of only 5 points, while its divergence from the one for the set increased to a peak of 67 for the period.

Over the remaining period, the coverage of this series progressively expanded upto the end of the period, when it coincided with the set. As the coverage expanded, the differential between the two coefficients in question was progressively reduced, from the peak of 67 points in 1911 to 35 points in 1941 and further to only 1 point in 1951. The present series, in any case, indicates that with the increase in the number of cities, the amount of inter-city variation in size had tended to rise, particularly during 1931-51; between these two years the number of cities increased from 36 to 82, while the coefficient moved up from 104 per cent to the peak of 163 per cent.

For the period as a whole, all the three series indicate an increase in the amount of variation. The coefficient for the set rose by 20 points and the one for the sub-set by 17 points. The remaining series indicates on the other hand, a much larger increase in the value of the coefficient, amounting to 74 points from 87 per cent in 1901 to 161 per cent in 1961.

We may finally refer briefly to the other two indices given in the above table; namely, the mean size of cities and the range of size variation as indicated by the difference between the largest and the smallest among them. Each series indicates that both the mean and the range had experienced continuous increase during the

period, the rate of increase being much faster in the second than in the first phase. The overall increase for the period is the largest for the sub-set in respect of the mean but for the group represented by the second series in respect of the range. The range is shown here to have increased from 829,000 for 26 cities with the mean of 239,000 in 1901 to 4,052,000 for 113 cities with the mean of 338,000 in 1961.

In view of the large extension of the range of variation in size of cities, we may consider also the distribution of the places classified as cities (covered by the second series of the preceding table) in each census according to selected intervals of the expanding range. For this purpose we take the same intervals as the census of 1961 but further break-up the lowest of them as shown in Table 50.

Heavy concentration at the lower end of the range continued from census to census to characterise the pattern of distribution of cities by size of population. The lowest of the four main intervals, namely, the one extending from 100,000 to 250,000 claimed in each census by far the largest number of cities. Its preponderance had, however, tended to decrease in degree in the course of the period. The proportion of cities in this interval to the total number of cities decreased from over 80 per cent in 1901, 1911 and also 1921, to 72 per cent in 1931 and to 69 per cent in 1961. In terms of the percentage of the aggregate population of all cities, its relative importance was reduced to a greater extent; the percentage decreased progressively from its peak of 52 per cent in 1901 to 42 per cent in 1931 and further to 30 per cent in 1961.

Further, we may refer to the distribution of the cities in this interval over the six sub-intervals into which it is divided in the above table. Here again there is concentration in the lowest two of these six sub-intervals. The combined numerical strength of these two sub-intervals amounted to 35 per cent of all cities (out of 80 per cent as noted above) in 1901, 48 per cent in 1921 and 43 per cent in 1961; while their proportion in the aggregate population of all cities improved from 17 per cent in 1901 to 23 per cent in 1921, after which it steadily declined to record the lowest of 15 per cent in 1961. But it would appear that within the interval itself, these two lowest sub-intervals taken together improved their relative importance in the course of the period. The proportion, these two accounted for in the total population of the

Table 50: Distribution of cities of each year according to size of population

Size (—000)	1901	1911	1921	1931	1941	1951	1961
100-125	6	5	12	10	10	18	26
125-150	3	5	3	7	14	16	22
150-175	7	3	3	2	6	8	7
175-200	2	4	3	2	5	6	12
200-225	3	2	2	2	3	8	4
225-250	—	1	2	3	1	3	7
100-250	21	20	25	26	39	59	78
250-500	2	1	3	7	10	14	22
500-1000	3	2	1	1	4	4	6
1000+	—	2	2	2	2	5	7
TOTAL	26	25	31	36	55	82	113

cities in the interval, increased from 34 per cent in 1901 to 52 per cent in 1941; thereafter, it exhibited a tendency to fall but even so it was as high as nearly 50 per cent in 1961.

For the rest, it is sufficient to refer specifically to the higher end of the range, which indicates that million-plus cities had emerged for the first time in 1911. Their number remained constant at 2 from 1911 to 1941 and rose thereafter, to 5 in 1951 and to 7 in 1961. Together, the two million plus cities, Bombay and Calcutta, accounted for over 31 per cent of the aggregate city population in 1911. This proportion steadily decreased to 24 per cent in 1941 but rose again, with the successive additions noted above, to 37 per cent in 1951 and 39 per cent in 1961.

For an idea further of the status of the leading cities, we refer to the seven cities with a population of more than a million each in 1961. For this purpose we give below their individual shares in the aggregate city population of each census year of the period.

Table 51: Percentage of aggregate city population in the million-plus cities of 1961

City	1961	1951	1941	1931	1921	1911	1901
Bombay	10.88	11.23	10.54	13.35	16.40	15.74	13.06
Calcutta	7.67	10.21	13.54	12.86	13.87	15.71	15.00
Delhi	6.18	5.44	4.34	4.71	4.01	3.68	3.44
Madras	4.53	5.36	5.35	7.51	7.62	8.58	8.69
Hyderabad	3.28	4.27	4.62	4.91	5.34	7.76	7.20
Bangalore	3.16	2.98	2.57	3.26	3.16	2.93	2.59
Ahmedabad	3.16	3.32	3.72	3.30	3.61	3.35	2.99
TOTAL	38.86	42.81	44.68	49.90	54.01	57.75	52.97

It may be recalled here that in absolute terms only one of these seven cities, namely, Hyderabad, had witnessed in the course of the period a decennial decrease in its population. This was in 1911-21, over which its share in the aggregate was reduced from 7.8 per cent to 5.3 per cent. Apart from this, Hyderabad and all the other cities recorded during the period a continual increase in their populations.

The proportion of the aggregate city population claimed by each of these cities, however, varied from census to census. As compared to 1901, the proportion was higher in 1961 for three of these cities, namely, Delhi, Bangalore and Ahmedabad. Among them the improvement in the status is particularly striking for Delhi. In the order of importance according to size of population, Delhi occupied among the 26 cities of 1911 the seventh position, with a share of 3.44 per cent in the aggregate city population, whence it moved up to the sixth position in 1901, to the fifth position in 1921 and to the third position in 1951 and 1961 with a share of 5.44 per cent and 6.18 per cent respectively. In the case of Bangalore, while the over-all increase in the share is much smaller as compared to Delhi, the improvement in ranking is considerable; it rose from the 15th rank in 1901 to the 9th in 1911 and gradually thereafter to the 6th in 1961. The remaining

city of Ahmedabad improved its rank from the 10th in 1901 to the 6th in 1921, whence, after remaining there upto 1951, it fell to the 7th position in 1961.

The remaining four cities had each a smaller share of the aggregate in 1961 than in 1901. Among them, the reduction in the share amounted at the maximum to 7.33 percentage points for Calcutta; even so it retained its second position in the hierarchy of Indian cities. Bombay lost only 2.18 points and occupied the first position in all the census years, excepting 1901 and 1941. In the case of Bombay, the loss in the share of the aggregate had, however, occurred after considerable improvement it had recorded between 1901 and 1921. In respect of Madras and Hyderabad, the only notable feature of the change in their status during the period is the precedence gained over them in the order of importance by Delhi in 1951. The share of Madras in the aggregate city population was reduced over the period by 4.16 points and that of Hyderabad, by 3.92 points; each moved down the order but only to the next lower position.

Reference may be made also to the two cities, Lucknow and Varanasi, which were among the first seven cities in 1901 but had surrendered their positions in the course of the period to Bangalore and Ahmedabad. Between 1901 and 1961, Lucknow moved down the order from the 5th to the 10th position and its share was reduced from 4.1 per cent to 2.7 per cent. Likewise, Varanasi fell from the 6th to the 14th position and its share in the aggregate decreased from 3.5 per cent to 1.3 per cent only.

Finally, comparison between the greatly extended rank order of 1961 and the corresponding order of 1901, indicates that 20 from among the 26 cities in the latter order reappear among the first 26 cities of 1961. The remaining six are displaced by the places that acquired the status of a city in the course of the period. Among these, we have Indore in the 19th position in the order for 1961 with a share of 1.03 per cent and Jabalpur in the 20th, with a share of 0.96 per cent of the aggregate city population. The other four in the 22nd to 25th positions are the South Suburban town group, Sholapur, Jamshedpur and the Cochin-Ernakulam town group, respectively claiming 0.90 per cent, 0.88 per cent, 0.86 per cent and 0.82 per cent of the 1961 aggregate city population.

Among the six cities, which the above had replaced, we have

Tiruchirapally in the 36th rank in 1961 with a share of only 0.65 per cent as against the corresponding share of 1.68 per cent in 1901. Next, we have Bareilly in the 33rd position with a share of 0.71 per cent in 1961 as compared to its share of 2.14 per cent in 1901. There remain the four cities of Gwalior, Baroda, Srinagar and Surat in the 27th to 30th positions, each with a share of over three fourth of a per cent in 1961 as compared with a share of 2.23 per cent, 1.67 per cent, 1.97 per cent and 1.92 per cent in 1901 respectively.

CHAPTER SIX

SEX RATIO OF CITIES

Sex ratio of the aggregate city population

Here too, we may begin the analysis of the changes in the sex ratios of individual cities with a brief reference to the over-all position as indicated by the course of the sex ratio of their aggregate population. In line with the preceding discussion on the size of cities, we may refer first to the three differently derived aggregates of city populations for (1) the set of all the 113 cities of 1961, (2) the sub-set comprising the 26 cities of 1901, referred to below as the first sub-set, and (3) the second sub-set covering a varying number of cities that were taken to form the first of the six size classes of towns in each successive census. In respect of the latter sub-set, we had the occasion to refer to the changes in its sex ratio in the discussion relating to the size classification of towns but there the main consideration was its comparative position vis-a-vis the other size classes. In the present connection, we will consider its relative position vis-a-vis the other two aggregates on the basis of the data given below.

Table 52: Sex ratios of the aggregate city populations, 1901-1961

	Cities of 1901		Cities of each year		Cities of 1961	
	No.	S.R.	No.	S.R.	No.	S.R.
1901	26	785	26	785	108	823
1911	26	732	25	730	111	781
1921	26	700	31	709	113	755
1931	26	704	36	724	113	754
1941	26	692	55	721	113	745
1951	26	750	82	789	113	794
1961	26	769	113	799	113	799

It will be seen that from census to census all through the period, the sex ratio of the all-inclusive aggregate for the set maintained a higher level as compared to the other two ratios. As between the sub-sets, the level has been consistently higher for the second sub-set of varying coverage, excepting only in 1911, when it was a little lower than that of the other ratio.

As for the temporal variation in the ratio, the set exhibits a continual decrease over the first four and, thereafter, a progressive increase during the remaining two decades of the period. The latter increase however proved insufficient to compensate fully for the loss suffered earlier and so the ratio stood in 1961 at a level lower by 24 points than the one of 1901.

For the two sub-sets, the direction of change was the same in each decade and it differed from that of the set only in one decade, namely, 1921-31 in which the sub-sets recorded varying amounts of increase in contrast to a small decrease shown by the set. The amount of change did in each decade differ as between the sub-sets; and the over-all change for the period as a whole amounted to a reduction of 16 points for the first sub-set but an increase of 14 points for the second.

Comparison of the successive sex ratio levels between the set and the first sub-set indicates that the earlier tendency of increasing divergence between their ratios was later replaced by an opposite trend of decreasing divergence. The differential between the two ratios, measured in terms of the number of sex ratio points, increased from 38 in 1901 to 49 in 1911 and to 55 in 1921. Then, after maintaining relative stability over the next two decades, it was reduced from 54 in 1941 to 44 in 1951 and to only 30 in 1961.

Similarly considered, the differential between the set and the second sub-set had increased but only once, during 1901-11. Thereafter, it decreased progressively up to 1961, when the sub-set came to coincide with the set. Thus, it would appear that with each successive enlargement of its coverage the sex ratio of the sub-set moved closer to that of the set. The differential between the two measured 51 points in 1911, when the sub-set comprised only 25 of the 113 cities in the set, but only 5 points in 1951, when it claimed 82 out of the 113 cities.

In relation to the first sub-set, the second increased its strength, in terms of the number of cities, progressively from 1911 onwards. In that year its ratio was at a slightly lower level as compared to

that of the first sub-set. Thereafter, it consistently recorded a higher level and the differential between the two progressively increased from only 9 points in 1921 to 49 points in 1951. In the final decade, however, the gap was reduced to 30 points, even though the coverage of the second sub-set had increased substantially.

An over-all view of the period does not suggest any drastic change to have taken place in the sex ratio of any of the three aggregates. But when we consider changes in each decade separately, 1901-11 and 1941-51 stand out as showing more substantial changes. In the former decade, all the three ratios experienced a decrease, amounting to 42 points for the set, 53 points for the first and 55 points for the second sub-set. The latter decade witnessed on the other hand, a common increase in the three ratios, amounting to 49, 58 and 68 points respectively.

Likewise, if we take the two phases of the period separately, the quantum of change in each ratio appears to be much more substantial for each of the phases than for the period as a whole. The first phase recorded a common decrease and the second, a compensatory increase in the ratios. The amount of increase proved more than sufficient to eliminate the previous decrease only in the case of the second sub-set; the increase amounted to 75 points as against the preceding decrease of 61 points and so the period as a whole recorded an increase of 14 points. For the other sub-set, the decrease exceeded the subsequent increase by 16 points and for the set, by 24 points.

Inter-city variation of sex ratio

To pursue the consideration of the over-all position further, we may pass on from the above noted ratios of the aggregate city populations to other measures of dispersion, computed for each census year of the period in respect of the three groups of cities constituting the set and the two sub-sets. The two indices we will refer to are (i) the range of inter-city variation as indicated by the differential between the highest and the lowest level of the ratio and (ii) the coefficient of variation based on standard deviation of the ratios of individual cities from the ratio of the relevant aggregate of city populations.

In none of the census years of the period, there obtained any significant difference in the value of the coefficient as between the three groups of cities under consideration. Even so, it is interest-

Table 53: Inter-city variation in sex ratio, 1901-1961

Year	Cities of 1901			Cities of each year			Cities of 1961		
	Mean	Range	Coefficient	Mean	Range	Coefficient	Mean	Range	Coefficient
1901	785	527	18.8	785	527	18.8	823	637	17.7
1911	732	514	21.8	730	514	21.8	781	661	20.7
1921	700	501	22.7	709	571	22.4	755	623	21.0
1931	704	513	20.1	724	626	20.8	754	685	19.7
1941	692	527	22.7	721	636	20.8	745	616	21.6
1951	750	407	17.1	789	491	16.0	794	511	16.4
1961	769	340	13.1	799	519	14.0	799	519	14.0

ing to note that the first sub-set, representing the smallest of the three groups, recorded in fact a larger coefficient as compared to the largest group—the set, in five of the seven years of the period. In each of the remaining two years, the value of its coefficient was somewhat smaller.

As for the changes in the variation in the course of the period, the three series of coefficients commonly show an increase in the first decade, maintain relative stability over the next three and then record a strong decreasing trend for the remaining two decades. The decrease of 1941-51 represents the largest amount of decennial change in the period for all the three groups. It is notable that this decrease accompanied a decrease in the mean value of the ratio for the first sub-set but for the other two groups, there was an increase in the mean value during the decade. Over the last two decades, the decrease in the coefficient amounted to 7.6 points for the set, 9.6 points for the first and 6.8 points for the second sub-set. Over the period as a whole, the variation had decreased but by smaller amounts; the coefficient was reduced by 3.7, 5.7 and 4.8 points respectively for these three groups.

Reference to the range of variation of the ratios, indicates a somewhat different comparative position for the first sub-set. The range has all along been smaller for this sub-set as compared to the set and from 1921 onwards also as compared to the other sub-set. As between the latter two, the range differed in extent in all years excepting 1961, when they coincided with each other. The sub-set had a smaller range in all years excepting 1941, but the differential between the two ranges was greatly reduced during the period first in 1911-21 and again in 1931-41.

The decennial changes in the range do not yield any consistent trend over time for the set and the first sub-set. In respect of the second sub-set it is, however, clear that the successive enlargements of its coverage were accompanied by extensions of the range up to 1941; the range measured 514 points for the 25 cities of 1911 but 636 points for the 55 cities of 1941. Thereafter, there followed in 1941-51, a sizable reduction in the range for all the three groups, amounting to 105 points for the set, 120 points for the first sub-set and 145 points for the second sub-set. In the final decade, the range was further reduced for the first sub-set but for the other two groups there was a moderate increase. If we take the period as a whole, the reduction in the range is again common for

the three groups; this reduction was very substantial for the first sub-set, quite substantial for the set and nominal in amount for the second sub-set.

Additionally, we may indicate how the cities in the set and the first sub-set were distributed over the extent of the above ranges for the terminal years of the two phases of the period.

Table 54: Frequency distribution of cities according to the level of sex ratio 1901, 1931 and 1961.

Range	Cities of 1961			Cities of 1901		
	1901	1931	1961	1901	1931	1961
1000+	22	5	2	3	—	—
900-1000	39	24	33	9	3	5
800-900	28	39	46	9	9	12
700-800	10	24	21	2	9	6
600-700	5	11	7	1	2	3
<600	4	10	4	2	3	—
TOTAL	108	113	113	26	26	26
Average ratio (unweighted)	893	815	844	862	782	820

Taking the set first, it may be noted that between 1901 and 1931 the range of variation had enlarged from 637 to 685 points. This increase of 48 points had resulted from the reduction in the level being so much greater for the lowest as compared to that in the highest ratio. There had occurred during the phase, a significant shift in relative importance from the higher to the lower intervals. The number of cities with sex ratio of 1000 or more was drastically reduced. There was a sizable decrease in the number for the next lower interval of 900-1000. The modal group had moved down to the next lower interval, while the remaining intervals had also recorded substantial increases; particularly notable among them is the increase in the number of cities in the lowest two intervals, taken together, from only 9 to 21.

In the second phase, the range had narrowed down by 166 points to 519 in 1961. This decrease had resulted from a rise in the level of the smallest ratio from 413 to 497 and a simultaneous reduction in that of the largest ratio from 1098 to 1016. The frequency for the highest interval was reduced to only 2 in 1961. But over the rest of the range, there was a shift in importance in this phase from the lower to the higher intervals. The modal group is retained in the same interval but in size it is larger. The number of cities in the next higher interval, 900-1000, too recorded a substantial increase. At the other end, the combined strength of the two lowest intervals suffered a sizable reduction. On the whole, there was a noticeable increase in the degree of concentration of the cities in the middle intervals of the range, between 700 and 1000. Their combined strength increased during the phase by 13 to 100 out of the total of 113 cities in the set.

For the sub-set, the range of variation for its 26 cities had narrowed down successively in the two phases of the period. In the first, the reduction in the range amounted, however, to only 14 points, with the highest level of the ratio decreasing from 1045 to 985 and the lowest, from 518 to 472. In 1931, the highest interval, representing ratios of 1000 or more, was eliminated, while the frequency of the next interval had been drastically reduced. Correspondingly the number of cities in the three lowest intervals had increased; the most substantial gain accruing among them to the one of 700-800.

In the second phase, the reduction of the range amounted to as much as 173 points, with the lowest ratio moving up by 140 points to 612 in 1961 and the highest moving down by 33 points to 952. In 1961, the intervals at the two extremes are not represented. Only one of the remaining four intervals, 700-800, shows a reduction in the number of cities. The modal group in the next higher interval had improved its strength to 12 and the combined strength of the three middle intervals, between 700 and 1000, increased to 23 out of the total of 26 cities in the sub-set.

Direction of change in sex ratio

For a detailed review of the changes in sex ratio experienced by individual cities in the course of the period, we may now proceed to have a comparison of the level of sex ratio as between the relevant census years of the period in respect of each of the cities in the set.

In this connection, it may be recalled that five of the places classed as cities in 1961 were added to those in the set in the course of the period; 3 of them in 1911 and 2 in 1921. This comparison, therefore, covers 108 cities for the first decade, the first phase and the period as a whole, while for the second decade it covers 111 cities. For the second phase and the remaining four decades of the period the coverage extends to all the 113 cities of 1961. The comparison accordingly yields 108 numbers indicative of the over-all change in the ratio for the period as a whole, 221 other numbers denoting changes for the two phases of the period and a total of 671 other numbers representing decennial changes for the six decades. We will, on the basis of these numbers, consider first the direction and then the amount of change in the sex ratios.

For the direction of change in sex ratio, we distribute the cities in the set as well as those in the first sub-set according to whether there was an increase or decrease in their ratios in each decade and phase of the period and over the period as a whole.

Table 55: Distribution of cities according to direction of change in the sex ratio, 1901-11 to 1951-61

Decade	Set				Sub-set I			
	+	—	=	Total	+	—	=	Total
1901-11	24	82	2	108	3	22	1	26
1911-21	19	91	1	111	1	25	—	26
1921-31	36	76	1	113	9	16	1	26
1901-1931	10	98	—	108	—	26	—	26
1931-41	73	39	1	113	18	8	—	26
1941-51	86	26	1	113	23	3	—	26
1951-61	39	74	—	113	16	10	—	26
1931-1961	78	34	1	113	22	4	—	26
1901-1961	29	79	—	108	6	20	—	26

Taking the 671 numbers denoting decennial changes for the six decades of the period, it will be seen that 6 of these numbers represent a rather unusual outcome of the ratio maintaining the

same level for two consecutive census years. To identify these unusual instances of stability, we may add that such stability was shown by Baroda and Jodhpur in 1901-11 and in the succeeding four decades chronologically by Mirzapur, Meerut, Belgaum and Trivandrum. Of the remaining bulk, 388 numbers represent a decrease and 277 an increase in the ratio in the course of a decade.

Considering the decades individually, it is notable that the decreasing ratios preponderated in the first three and, to a somewhat lesser extent, also in the last decade. The preponderance was of the greatest degree for 1911-21, in which 91 out of the 111 cities in the set experienced a decrease in the ratio. The remaining two decades show a preponderance, on the other hand, of increasing ratios; between them it was comparatively of a higher degree for 1941-51.

Taking the first three decades separately for an idea of the changes that had taken place in the course of the first phase, we get 249 instances of decennial decrease as against only 79, of decennial increase. If, on the other hand, we compare the ratios as between the terminal years of the phase, the preponderance of decrease in ratio is found to be even greater. Net decrease in the ratio over the phase occurred in respect of 98 cities and net increase in respect of the remaining only 10 cities. The decreasing trend may thus be said to have been even more general for the phase than for any of its three decades. In respect of this phase, it is interesting to note further that for the sub-set of 26 cities, the decrease in the ratio was not merely general but universal, all the cities having recorded a smaller ratio in 1931 than in 1901.

Similarly considered, in the second phase the increasing trend may be said to have been general, though not to the same degree as the opposite trend had been in the first phase. Of the numbers denoting decennial changes of this phase, 198 represented an increase and 139, a decrease in the ratio. As for the net change over the three decades of the phase, we have one unusual instance of the ratio repeating the same level in the terminal years of the phase, reported in the case of Thana. Apart from this, net change over the phase was one of increase in the ratio for 78 cities and of decrease for the remaining 34. The trend of increase was apparently less general for the phase than for 1941-51 but more so as compared to the decade 1931-41.

For the period as a whole, the net result of the series of six

decennial changes, or of the changes for the two phases, was a decrease in the ratio for 79 cities and an increase for the remaining 29. In respect of the five places included in the set in the course of the period, comparison of the ratio between the year of entry—1911 or 1921 and 1961—indicates a decrease for one of them but an increase in the ratio for the remaining four.

It is also clear that for each city the change in the ratio indicated for the period by a comparison of its level between 1901 and 1961 was the net result of six decennial changes, recorded for the different decades of the period. It may be interesting, therefore, to see the extent to which the direction of decennial changes had in fact differed from the one of net change over the period. For this purpose, we distribute below the cities showing net increase as well as those showing net decrease according to the number of decades in which their ratios had increased. Barring a few exceptions, maintaining the ratio at the same level for two consecutive census years, the remaining decades in each case had witnessed a decrease in the ratio.

Table 56: Distribution of cities, classified by the direction of net change in the sex ratio, according to the number of decennial increases therein

No. of decades recording increase	Set			Sub-set		
	+	—	All	+	—	All
All	1	—	1	—	—	—
5	3	—	3	—	—	—
4	5	4	9	1	2	3
3	12	27	39	3	10	13
2	8	25	33	2	5	7
1	—	21	21	—	—	3
Nil	—	2	2	—	—	—
Total	29	79	108	6	20	26

We have three rather exceptional cases, showing that the direction of change had been the same for all the successive

decades of the period. For Jammu, among them, there was a continuous increase and for Ranchi and Nellore, a continuous decrease in the ratio. Increase in the ratio was repeated in five of the six decades for only three cities, Kolar Gold Fields, Calicut and the Cochin-Ernakulam town group; for the first two, the trend was continual from 1901 to 1951 and for the third, from 1911 to 1961. The decrease in five decades, was, on the other hand, much more common; it is reported for 21 of the remaining cities. The decrease was continual from 1901 to 1951 for only one of these cities, Jamnagar and from 1911 to 1961 for two other cities, Vellore and Monghyr-Jamalpur. The continuity of the decreasing trend was breached by an increase in the ratio in one of the middle decades for the remaining 18 cities; such a breach occurred for 7 of them in 1941-51, for 5 in 1921-31, for 5 again in 1931-41 and for the remaining one in 1911-21.

Further, we may take note of the largest group of 39 cities, each of whom had experienced an increase in the ratio in half the decades. Some 27 of them showed, however, a net decrease and only 12, a net increase over the period. For 9 other cities, the increase was repeated in four of the six decades; even so, four of them wound up the period with a net decrease in the ratio. In contrast, we have 33 other cities, experiencing a decrease in four decades; only 8 of these showed a net increase over the period.

To add a word about the sub-set, the comparable pattern of distribution is broadly similar. A notable feature of this distribution, however, is that none of the 26 cities in the sub-set showed a continuity of the trend, either of an increase or a decrease in the ratio, through the period as a whole. Nor have we any instances recording an increase for five of the six decades.

In the same way, the change for the period, taken as a whole, may be viewed as the net result of the changes for the two phases of the period. Here, among the 29 places, showing a net increase for the period, the increase was common to the two phases in respect of only the five places, four of which were noted above as repeating the increase in five or all the decades. The net increase resulted for 23 other places on account of the increase for the second phase being more substantial in amount than the decrease of the first phase. There thus remains only one place, Rajkot, in whose case the more substantial increase had occurred in the first phase.

With regard to the other 79 places, experiencing a net decrease over the period, the decrease was common to the two phases for 27 of them. The decrease of the first phase was followed by no change in the ratio in the second phase in one case; while in respect of four other places, the increase of the first was followed by more substantial decrease in the second phase. For the remaining bulk of 47 places, the common experience was the failure of the increase of the second phase to entirely eliminate the decrease of the first.

Among the 26 cities of the sub-set, we have only 6, showing a net increase in the ratio over the period; for each of them, the increase of the second phase was comparatively more substantial in amount. For 16 other cities, the decrease of the first phase could not be so eliminated. In the case of the remaining four cities, namely, Ahmedabad, Bangalore, Tiruchirapally and Madurai, the decrease was common to both the phases of the period.

Amount of Decennial Change in Sex Ratio

To indicate the amount of change in the sex ratio of a city over a decade, a phase or the period as a whole, we refer to the difference in its level as between the two relevant terminal years. In each case, the excess of the succeeding over the preceding year, expressed in terms of sex ratio points, is taken to denote the amount of increase and the excess of the preceding over the succeeding year, to denote the amount of decrease in the ratio. So computed, the range of variation in the amount extends for the 671 decennial changes of the period, from a decrease of 386 points for the Durg town group in 1951-61 to an increase of 242 points for Asansol in 1941-51. For the first phase, it extends from a decrease of 280 points for Patna to an increase of 190 points for Kolar Gold Fields and for the second, from a decrease of 322 points for the Durg town group to an increase of 252 points for Dehradun. For the period, the range of variation in the amount of net change extends from a decrease of 242 points for Patna to an increase of 285 points for Kolar Gold Fields.

For a more detailed idea of how the amount of change in sex ratio had varied from city to city, we break up the range noted above into a selected number of intervals and distribute the cities in the set over these intervals according to the amount of change in their ratios for each decade.

Table 57: Distribution of cities according to the amount of decennial change in sex ratio

<i>Amt. (No. of Pts.)</i>	1901-11	1911-21	1921-31	1931-41	1941-51	1951-61
<i>Decrease</i>						
100+	3	5	3	2	1	3
75-99	14	5	4	2	—	3
50-74	16	17	16	3	2	10
25-49	27	28	21	8	10	20
10-24	18	27	20	11	6	25
5-9	4	6	6	6	2	9
0-4	—	3	6	7	5	4
0	2	1	1	1	1	—
<i>Increase</i>						
0-4	6	2	2	3	4	6
5-9	3	6	6	6	6	6
10-24	5	3	8	22	18	11
25-49	7	5	10	26	18	11
50-74	3	2	2	13	17	2
75-99	—	—	4	1	11	3
100+	—	1	4	2	12	—
	108	111	113	113	113	113

It will be seen that the pattern of distribution differs strikingly only between the two decades, 1931-41 and 1941-51, showing a preponderance of cities with increasing ratios, on the one hand, and the remaining four decades, showing preponderance of cities with decreasing ratios, on the other. As between the former two, the concentration of cities in the two intervals, representing a moderate increase of 10 to 50 points, is distinctly of a higher degree

for 1931-41. The number of cities with the increase amounting to 50 or more points is, on the other hand, only 16 in 1931-41 as against 40 in 1941-51. The latter, among the six decades of the period, records in fact the largest number of cities, with the increase amounting to 100 points or more.

For the remaining four decades, the upper half of the table indicates that the bulk of the cities are arranged in each decade within the three middle intervals indicating a decrease of 10 to 75 points; these three intervals account in each decade for 70 to 80 per cent of the cities with decreasing ratios. As between these three intervals, the lowest one of 10 to 25 points records a significant increase in its relative importance first between 1901-11 and 1911-21 and then between 1921-31 and 1951-61. Apart from this, it is notable that the combined frequency of the two intervals indicating a decrease of 75 points or more, is progressively reduced, from 17 in 1901-11 to 7 in 1921-31 and to 6 in 1951-61.

It is interesting to refer further to the two open-ended intervals flanking the range of variation. We have in these two a total of 36 decennial changes; 17 denoting a decrease and 19, an increase in the ratio. The largest increase amounted, as noted earlier, to 386 points for the Durg town group in 1951-61 and the second largest, to only 190 points for Nasik in 1951-61. The largest among the increases was 242 points for Asansol in 1941-51 and the second largest, 182 points for Dehradun in the same decade.

These 36 substantial changes relate to only 23 cities, 10 of which had experienced such a decennial change more than once in the course of the period. The most outstanding among these ten cities is the case of Gorakhpur, whose ratio had changed so substantially in four of the six decades. The ratio in this case had decreased by 147 points in 1901-11, increased by 105 points in 1921-31 and by 148 points in 1931-41 and decreased again by 100 points in 1941-51. Asansol had experienced three such changes; its ratio had decreased by 121 points in 1921-31, increased by 242 points in 1941-51 and decreased again by 183 points in 1951-61. For the remaining 8 cities, such changes were recorded in two decades. Both changes represented an increase, however, in the case of only Kolar Gold Fields from among them; the increase amounting to 107 points in 1911-21 and 103 points in 1941-51. For the other 7 cities, there was an increase in one of the decades and a decrease in another. The largest of these increases measured

164 points for South Dum Dum in 1941-51 and the largest decrease, 162 points for the South Suburban town group in 1931-41.

Amount of change for the two phases and over the period

Taking the break-up of the range of variation into the same series of intervals as above, we may further distribute the cities according to the amount of change in sex ratio over the period and for its two phases, as follows.

Table 58: Distribution of cities according to amount of change in sex ratio for the period and its two phases

<i>Arith.</i> (No. of Pts.)	<i>I Phase</i>			<i>II Phase</i>			<i>Period</i>		
	+	—	Both	+	—	Both	+	—	Both
100+	1	39	40	17	1	18	3	29	32
75-99	—	18	18	10	4	14	3	11	14
50-74	1	18	19	10	6	16	2	15	17
25-49	3	19	22	17	8	25	11	14	25
10-24	3	2	5	16	10	26	5	7	12
5-9	1	—	1	5	3	8	1	1	2
0-4	1	2	3	4*	2	6	4	2	6
	10	98	108	79	34	113	29	79	108

*Includes one entry with 0 change

The pattern of distribution for the second phase is, on the whole, quite different from the one for the first phase. In this connection, it is significant to compare the distribution of the two preponderant groups, the one comprising cities with decreasing ratios in the first and the other comprising cities with increasing ratios in the second phase. The distribution of the first group indicates a heavier concentration of the cities in the higher intervals of the range as compared to that of the second group. The decrease exceeded 99 points for 39 of the 98 cities in the first group but the increase was so substantial for only 17 of the 78 cities in the second group. Combining the three highest intervals, it will be seen that the

decrease exceeded 49 points for as many as 75 cities of the first group, while the increase did so for only 37 cities of the second group.

If we leave the direction of change out and consider only the amount of change, the distribution appears to be more even for the second phase. Here, the largest frequency is 26 for the interval of 10 to 24 points as against 39 claimed by the highest interval in the first phase. The two intervals showing a moderate amount of change of 10 to 49 points account together for 51 cities in the second phase but for only 27 cities in the first. Alternatively, if we take the two highest intervals together, the amount of change exceeds 74 points for 32 cities in the second but for 58 cities in the first phase.

Comparing the above two patterns for the phases of the period with that of the period taken as a whole, it will be seen that the latter is much closer to the pattern for the first phase than to the one for the second. For quite a large number of cities the change was of contrary direction in the second as compared to the first. But the resulting modification of the pattern for the period is not quite so pronounced. The number of cities showing a decrease in the ratio is 79 for the period as against 98 for the first phase but as against only 34 for the second phase. The reduction amounted to 100 points or more for only 1 city in the second phase, for 29 cities for the period and for 39 cities in the first phase. Further, only 11 cities experienced in the second phase a decrease of 50 points or more; the corresponding number was 55 for the period and 75 for the first phase. If we likewise compare the distribution of cities with increasing ratios, the highest interval claims only 1 city in the first phase and 3 cities for the period as against 17 cities in the second phase. For the period, the largest number of such cities is placed in the interval of 25 to 49 points. Here, we have 11 of the 29 cities for the period as against 17 of the 79 cities for the second phase.

The extent to which the changes of the second phase modified the pattern for the period becomes evident when we ignore the direction of change and consider the distribution according only to the amount of change as given in each case by the third column combining the frequencies of the other two columns of the table. These frequencies for the three highest intervals are smaller for the period than for the first phase. The combined strength of these

intervals is 63 for the period as against 76 for the first and 48 for the second phase. Correspondingly, the frequencies of the lower intervals are all higher for the period. The largest gain among them occurs for the interval of 10 to 24 points, which claimed 5 cities in the first phase but 12 cities for the period.

Apart from this, we may separately consider the cities placed in the highest open-end interval of the range in the above table. Of the 40 cities in this interval for the first phase, we have only one, showing an increase in the ratio for this phase. This relates to Kolar Gold Fields, whose ratio as mentioned earlier had increased by 190 points over the first phase. This was followed by an increase of 95 points in the second phase and so this city earned the distinction of having experienced over the period the largest amount of net increase.

For the 39 cities, with decrease in the ratio for the first phase, the amount of decrease varied from only 100 points for Ludhiana to 280 points for Patna. Both these cities recorded an increase in the ratio for the second phase. In the case of the former the increase amounted to 116 points for this phase, and so net increase over the period amounted to only 16 points. The latter city recorded an increase of only 38 points and it was left to emerge as the city experiencing the largest amount of net decrease for the period. Apart from these two, we have 30 other cities, showing an increase in the ratio in the second phase. There thus remain only 7 of the 39 cities to repeat the decrease in the second phase. For 6 of them the decrease was, however, nominal or moderate in amount, ranging from 8 points for Udaipur to 24 points for Muzaffarpur. In the case of the remaining city, namely, Bhopal, it amounted to 95 points, bringing up the net decrease for the period to 195 points, which incidentally is the third largest amount of net decrease for the period. All these seven cities came, consequently, to be included again among the 29 cities in this interval in the distribution for the period.

Returning to the 32 cities, inclusive of Patna and Ludhiana, which had followed up the large decrease of the first phase with an increase in the second, it may be noted that for 12 of them the amount of increase exceeded 100 points. They are thus placed in this interval on the opposite side for the second phase. At the maximum, the increase amounted to 252 points for Dehradun among them. This was preceded by a decrease of 106 points

and so this city reappears in this interval for the period but on the positive side, with the third largest amount of increase over the period. For 7 of the remaining 11 cities, the excess increase varied from only 3 points for Indore to 44 points for Bhatpara. Of the other four, the increase was smaller than the preceding decrease by 86 points for Baly, 57 points for Kamarhati, 40 points for Delhi and 15 points for Burdwan.

For the 20 cities with smaller increases of the second phase, the amount varied from only 2 points for Bandar to 96 points for Gaya. Consequently, all of them showed a net decrease for the period. The net decrease amounted in fact to more than 100 points for 12 of them, including Patna and Gaya; they are therefore retained in the same interval in the distribution for the period. Notable among them is the case of Gorakhpur, which showed a net decrease of 211 points to claim the second place, after Patna, among these cities, ordered according to the amount of net decrease.

In the distribution for the second phase, we have, in addition to the 12 cities referred to above, 6 cities in this interval. The singular exception placed on the negative side, among them, relates to the Durg town group, which was not included in the set for 1901 and so was left out of the distribution for the first phase as well as for the period. The decrease in its ratio for the second phase amounted to as much as 322 points, while the net decrease as indicated by the comparison between the year of its entry into the set and 1961 measured a still higher figure of 370 points. Jamshedpur, from among the other five, is similarly left out of consideration for the first phase as well as for the period. The increase in its ratio measured 136 points for the second phase, while the net increase, computed in the same way as above, amounted to 106 points. Jammu, among the remaining four, had experienced an increase also in the first phase; and the two increases added up to 158 points to represent the second largest net increase for the period. Of the last three, the increase for the phase and the net increase over the period amounted respectively to 140 and 94 points for Calcutta, 134 and 98 points for Patiala, and 123 and 46 points for Amritsar.

We are left now with only 10 of the 32 cities in this interval for the period, each experiencing a decrease of less than 100 points in the first and again in the second phase. The two successive decreases added up in each case to 100 points or more to indicate

the amount of 'net' decrease over the period. This decrease over the period amounted to just 100 points, among these cities, for Tiruchirapally and also Salem but to 165 points, at the maximum, for Ranchi.

The above review of the changes in the sex ratio covered the set of 113 cities taken as a whole and did not, for the sake of convenience, refer, in its course, to the comparative position of the sub-sets. We may, therefore, supplement it with a brief reference to the changes for the cities in the first sub-set. The range of variation in the amount of change in sex ratio has no doubt been narrower for the 26 cities in this sub-set than for all cities in the set. Apart from this, the two patterns of distribution appear to be broadly similar for the different decades, and phases, and so also for the period as a whole. It may be mentioned, however, that only 2 of the 156 decennial changes for the cities in the sub-set had exceeded 100 points; the first was a decrease of 138 points for Ahmedabad in 1931-41 and the second, an increase of 124 points for Calcutta in 1941-51.

A notable feature of the distribution of the sub-set for the first phase was that the decrease had exceeded 25 points for each of the 26 cities, without any exception; and for 5 of them it had exceeded 100 points. In the second phase, the general trend of increase in the ratio was not shared by four cities. The amount of contrasting decrease varied among them, however, from only 12 points for Tiruchirapally to 49 points for Ahmedabad. The increase, on the other hand, had exceeded 100 points for 3 of the remaining 22 cities. For the period, net increase was recorded for only 6 cities; its amount, at the maximum, being 94 points for Calcutta, among them. The net decrease was 100 points or more, however, for four of the remaining 20 cities.

With regard to the changes, noted above as exceeding 100 points in amount, it may be recalled that we have, in our earlier review of the set, specified the actual amounts in respect of 5 of the cities in the sub-set, namely, Patna, Delhi, Calcutta, Amritsar and Tiruchirapally. Additionally, we have five instances of such changes, all signifying a decrease in the ratio; 3 for the first phase and 2 for the period. The decrease amounted, among the former three, to 109 points for Allahabad, 132 points for Varanasi and 153 points for Lucknow; and among the latter two, to 106 points for Ahmedabad and 112 points again for Varanasi.

We may also add a brief reference to the other group of 87 cities in the set in order to take note specifically of the amount of change in sex ratio for the respective decade in which each of them had, by increasing its population beyond the requisite minimum of 100,000 persons, acquired the status of a city. Of the 87 decennial changes, that had in effect accompanied the graduation of each place to urban class I, 46 signify a decrease and the remaining 41, an increase in sex ratio. However, only one of the 11 such changes for the first three decades of the period represented an increase in the ratio, amounting to 33 points for Cochin-Ernakulam. Among the other 10, the amount of decrease varied from only 1 point for Trivandrum in 1921-31 to 130 points for Jabalpur in 1901-11 and to a maximum of 142 points for Ajmer in 1911-21.

For the remaining three decades, the number of such graduating cities had successively increased from 18 to 27 to 31. Their distribution according to the amount of decennial change in sex ratio was in each decade broadly similar to the corresponding distribution of the existing cities. Preponderance of cities with increasing ratios characterized the two distributions for 1931-41 and, to a greater extent still, for 1941-51. It was in each decade a little higher in degree for the group of existing cities than for the graduating ones. Among the latter, the decrease in the ratio amounted in 1931-41 to 162 points, at the maximum, for the South Suburban town group as against the largest increase of 84 points for Bhatpara from among the preponderant group. In 1941-51, the largest decrease amounted to 100 points for Gorakhpur, while the increase was as high as 120 points for Kharagpur and 182 points, at the highest, for Dehradun.

For the remaining decade, 1951-61, we have again a preponderance of cities with decreasing ratios for both the groups. The decrease was reported for 52 of the 82 existing cities and for 23 of the 31 graduating cities. For none among the remaining 8 graduating cities, the increase had exceeded 100 points, the maximum increase amounting to only 76 points for South Dum Dum, from among them. Included among the 23 graduating cities with decreasing ratios, we have the two most outstanding instances of decennial decrease in the ratio; the amount of decrease was 183 points for Asansol and 386 points for the Durg town group, which as noted earlier, represents by far the largest amount of

decennial change experienced by the cities in the set in the course of the entire period.

Initial level of the changing sex ratio

The above discussion dealt with the comparative distribution of cities according to the level of the sex ratio for different census years of the period and then according to the amount of change in the level for different census decades. Confining attention to the two phases and the period as a whole, we may now consider the amount of change in the ratio in relation to its level at which the change was in effect initiated; the initial level is evidently the one of 1901 in respect of the change for the first phase as well as of the net change over the period and the one of 1931 in respect of the change for the second phase. For an idea of this relationship, we bring together, in Table 59 (page 134), the two relevant distributions of the cities in the set to represent the requisite cross-classifications of the cities for the two phases and for the period, with the modification that the respective range of inter-city variation is here divided into a fewer, and so broader class intervals.

In the first phase, of the ten cities with increasing ratios, the amount was less than 50 points for all the 4 cities in the highest interval for the initial level and for 2 of the 3 cities in each of the other two intervals. The exceptionally large increase of 190 points relates to Kolar Gold Fields in the lowest interval, with a ratio of 699 in 1901. It is, however, significant that the average amount of increase tends to fall as we move up from low to high ratios.

The distribution of the remaining bulk of 98 cities with decreasing ratios according to the initial level is much less even; 57 of them are placed in the highest, 35 in the middle, but only 6 in the lowest interval. Comparison of the distribution according to the amount of decrease between these three groups does not reveal any striking differences; for example, the decrease amounted to 100 points or more for 22 or 39 per cent of the first, 14 or 40 per cent of the second and 3 or 50 per cent of the third, or smallest, group. Similarly, the average amount of decrease does not markedly differ between these three groups. The average for the smallest group in the lowest interval for the initial level is in fact slightly higher than for the largest group in the highest interval. On the whole, it is clear that in the first phase the amount of change in the ratio was not in any sense correlated to its initial level.

Table 59: Distribution of cities according to initial level of sex ratio and amount of change therein for (A) 1901-31, (B) 1931-61 and (C) 1901-1961

Initial level	Decrease in S.R.					Increase in S.R.				
	No. of cities				Average points	No. of cities				Average points
	Total	100+	50-99	0-49		Total	100+	50-99	0-49	
A. 1901-31										
900+	57	22	23	12	91	4	—	—	4	16
700-899	35	14	12	9	85	3	—	1	2	42
<700	6	3	1	2	92	3	1	—	2	73
Total	98	39	36	23	89	10	1	1	8	41
B. 1931-61										
900+	21	1	7	13	50	8	—	1	7	18
700-899	11	—	3	8	42	52	4	14	34	45
<700	2	—	—	2	13	19	13	5	1	125
Total	34	1	10	23	46	79	17	20	42	61
C. 1901-61										
900+	55	26	20	9	95	6	—	—	6	24
700-899	22	3	5	14	50	16	—	3	13	34
<700	2	—	1	1	44	7	3	2	2	103
TOTAL	79	29	26	24	81	29	3	5	21	49

In the second phase, cities with decreasing ratios constituted a minority of 34, or 30 per cent, of the 113 cities in the set. The proportion of such cities was, however, as high as 72 per cent for the highest interval, as against only 17 per cent for the middle and 9 per cent for the lowest interval for the initial level. Correspondingly, cities with increasing ratios formed the largest proportion in the lowest and the smallest in the highest interval. Referring first to the minority group with decreasing ratios, it will be seen that the amount of decrease was less than 50 points for 23 of these cities, including the two in the lowest, 8 of the 11 in the middle

and 13 of the 21 in the highest interval. The decrease, on the other hand, exceeded 100 points only in one case, placed in the highest interval for the initial level. This relates to the outstanding reduction of 322 points from the level of 916, reported for the Durg town group. Besides this, it will be seen that the average amount of decrease tends to fall as we move down from the higher to lower intervals. The computations for these 34 entries yield, however, a coefficient of only $+ 0.12$, indicative of no significant degree of correlation between the initial ratio and the amount of decrease in its level for the second phase.

Turning to the 79 cities with increasing ratios, it will be seen that the distribution, according to the amount of increase, of the cities in the lowest interval differs significantly from the corresponding distributions of the cities in the two higher intervals. For 13 of the 19 cities in the lowest interval, the increase was 100 points or more; the corresponding number for the next interval is only 4 out of 52. In contrast, the cities with an increase of less than 50 points each, numbered 34 for the latter and only 1 for the former group. Further, for all the cities in the highest interval the increase was less than 100 points and for 7 of them, it was less than 50 points. The average amount of increase too rises here rather sharply from 45 points for the large group in the middle to 125 points for the smaller group of cities in the lowest interval. The inverse correlation so indicated to obtain between the initial ratio and the amount of increase therein is significantly high, the value of the coefficient being -0.767 for this group of 79 cities.

Over the period, taken as a whole, there was a net increase in the ratio for 29 of the 108 cities in the set. These include 7 of the 9 cities in the lowest, 16 of the 38 in the middle and only 6 of the 61 in the highest interval for the initial level. Their distribution according to the amount of increase indicates it to have been less than 50 points for 21 of them, including all the 6 cities in the highest, 13 of those in the middle and only 2 of those in the lowest interval. Of the other 8 cities, it was less than 100 points for the remaining 3 in the middle and 2 of the remaining 5 in the lowest interval. We are thus left with only 3 cities in the lowest interval for which the increase had exceeded 100 points. The average amount tends, here too, to rise as we move down the intervals and the coefficient of correlation comes to -0.47 , indicating co-variation to be quite significant at 5 per cent level.

There remains finally the large group of 79 cities with a net decrease in the ratio over the period. Only two of them are placed in the lowest interval for the initial level, as against 22 in the middle and 55 in the highest interval. The distribution of cities according to the amount of decrease in sex ratio differs rather significantly between the latter two groups, the decrease exceeds 99 points for almost half of the cities in the highest but amounts to less than 50 points for nearly two-thirds of those in the middle interval. Likewise, there obtains a significant difference between the two groups also in the average amount of decrease in the ratio. These differences are indicative of positive correlation between the initial level of the ratio and the amount of decrease therein; indeed the value of the coefficient of correlation between the two is as high as $+0.877$ for this group of 79 cities.

Thus, when attention is confined to net change in ratio over the period as a whole, we notice correlation between the initial level of the ratio and the amount of change in respect of both the groups of cities. The correlation is negative for the small group of cities with increasing ratios. It is positive and comparatively much greater in degree for the other preponderant group of cities, with decreasing ratios.

Change in the Degree of Sex Disproportion

We may now reconsider the changes in the ratio for an idea of how the degree of sex disproportion had for individual cities varied in the course of the period. As a more direct indicator, we will refer in this connection to the deviation of the reported or observed level from the one at which the ratio expresses numerical equality between the sexes. As a quantitative measure of this deviation, we take the number of points by which the observed level of the ratio differed from unity. It may be added, in this connection, that the sex ratio is so defined here that a positive deviation of its level from 1000 is indicative of an excess and a negative one, of a deficiency of females in the population in question.

For an idea of the variation in sex disproportion experienced by the cities in the course of the period, we may thus distribute them according to the amount of increase or decrease in the deviation over the period or a phase as shown below :

Table 60: Distribution of cities according to initial level of sex ratio and change in its deviation from unity, 1901-31, 1931-61 and 1901-1961

Initial level	Increase in deviation (No. of pts.)					Decrease in deviation (No. of pts.)				
	100+	75-99	50-74	25-49	0-24	100+	75-99	50-74	25-49	0-24
1901-31										
1000+	5	—	—	1	5	1	1	1	4	4
900-999	13	9	7	5	1	—	—	—	—	4
700-899	14	5	7	7	2	—	—	1	2	—
<700	3	—	1	2	—	1	—	—	1	1
TOTAL	35	14	15	15	8	2	1	2	7	9
1931-61										
1000+	—	—	1	—	1	—	1	—	2	—
900-999	1	—	4	4	7	—	—	1	1	6
700-899	—	2	1	3	5	4	7	7	15	19
<700	—	—	—	—	2	13	3	2	1	—
TOTAL	1	2	6	7	15	17	11	10	19	25
1901-61										
1000+	3	1	3	3	3	2	1	1	2	3
900-999	13	6	6	6	2	—	—	—	3	3
700-899	3	2	3	7	7	—	2	1	6	7
<700	—	1	—	—	1	3	1	1	2	—
TOTAL	19	10	12	16	13	5	4	3	13	13

Comparing this with the preceding table (No. 58) distributing the cities according to absolute amount of change in the level of the ratio, we find indeed a very close resemblance between the two

patterns of distribution. This resemblance is explained by the continuing preponderance, within the set, of cities with ratios below 1000. For such a city, a fall in the level of the ratio is evidently identical with an increase in the deviation and a rise, up to unity, is likewise identical with a reduction in the deviation. Among the cities with initial level below 1000, we have none for which the increase for either phase, or for the period, had been substantial enough to raise the level beyond 1000. And the two distributions, therefore, assume the same pattern.

The distribution differs rather significantly between the two tables for the remaining small group of 22 cities, each with a ratio greater than unity in 1901. The general decrease in the ratio was shown by all these cities in the first phase and by 15 of them in the second. The remaining 7 cities experienced in contrast a rise in the level of the ratio in the second phase. The amount of increase in the ratio was not, however, sufficient in any case to compensate fully for the decrease of the first phase and so, when the period is considered as a whole, each of the cities record a net decrease in the ratio.

The amount of decrease for the first phase was not, on the other hand, sufficient to carry the ratio down to a level below unity in respect of only 5 of these cities. The decrease for each of these cities was in effect identical with the reduction in the positive deviation of the ratio from unity. For Vellore, among these five cities, the reduction amounted to as much as 122 points and it resulted in the replacement of the 1901 excess of females by an equality between the sexes in 1931. Of the remaining 4, the positive deviation of 1931 was smaller as compared to 1901, by only 2 points for Nagercoil, 26 points for Eluru, 39 points for Palayamcottai and 54 points for Nellore.

For the other 17 of these cities, the decrease in the first phase caused the excess of females to be replaced by a deficiency, which was smaller in degree as compared to the previous excess for 6 of these cities. For the remaining 11 cities, the change in the character of disproportion was accompanied by an increase in its degree; the deviation had increased among them by 100 points for Darbhanga, 109 points for Mirzapur, 135 points for Warrangal, 146 points for Shahjehanpur and 258 points for Patna.

For the second phase we have, as mentioned above, only 5 cities with a ratio at 1000 or above in 1931. There was a common

decrease in their ratio during the phase. The decrease amounted to a reduction in female excess for Eluru and Palayamcottai, among them. For Nagercoil, the female excess was replaced by a smaller degree of female deficiency, while for the remaining two cities of Nellore and Vellore the deficiency was comparatively much greater in degree.

Over the period as a whole, while there was a net reduction in the ratio for all the 22 cities, only for two among them, namely, Eluru and Palayamcottai, the excess of females had persisted in 1961, though it was reduced by 54 points for the former and 121 points for the latter. For seven other cities, the female deficiency was in 1961 smaller in degree as compared to the excess of 1901; the deviation of the ratio being reduced, at the maximum among them, by 100 points for Vellore. For the remaining 13 cities the deviation had increased; the increase amounting to 117 points for Darbhanga, 129 for Shahjehanpur and 220 points for Patna.

If we take the set of cities, as a whole, it will be seen that the disproportion of sexes in the population had increased during the first phase for as many as 87 of the 108 cities in the set for 1901. In the second phase, it had, on the contrary, decreased for 82 cities. Over the period as a whole, the character of disproportion changed from an excess to deficiency of females for 20 cities; in degree the disproportion had, however, increased for 70 and decreased for the remaining 38 cities in the list of 1961.

Population Growth and Variation in Sex Ratio

It is clear that the concurrence of changes in the two variables considered separately in the above discussion, namely, the size and the sex ratio of city population, arises on account of sex differentials displayed by the process of population growth. For a fuller analysis of these differentials we need detailed sex-wise data on the components of growth—birth, death, emigration and immigration. Such data are, however, not available in requisite detail for any of the cities under consideration. We have thus to fall back upon a joint reconsideration of these two variables for inferences regarding the incidence of sex differentials displayed by the process of growth.

Confining attention first to decennial changes in the two variables the following table distributes the cities according to the direction of change.

Table 61: Direction of change in S.R. of cities classified according to decennial increase or decrease in population.

<i>Change in S.R.</i>	<i>Increase in population</i>			<i>Decrease in population</i>		
	—	=	+	—	=	+
1901-11	50	1	16	32	1	8
1911-21	66	1	14	25	—	5
1921-31	74	1	34	2	—	2
1901-31	88	—	9	10	—	1
1931-41	39	1	73	—	—	—
1941-51	26	1	83	—	—	3
1951-61	73	—	39	1	—	—
1931-61	34	1	78	—	—	—
1901-61	79	—	29	—	—	—

Of the 79 instances of decennial decrease in population, the concurring change in sex ratio was also one of decrease in 60 cases. In a solitary case the ratio had not changed, while for the remaining 18 the ratio had increased. It is notable, however, that the bulk of these instances of decrease in population relate to the first three decades of the period, in which the decrease in ratio was a much more common phenomenon.

The remaining 592 instances show decennial increase in population. Among them we have 5 instances of stability of the ratio over a decade; 259 record an increase and 328, a decrease in the ratio. Here again the decreasing trend is much more common in respect of the first three decades, for which we have 190 instances of decrease as against 64 of increase in the ratio. For the remaining three decades the instances of increase number 195 as against 138 instances of decrease in the ratio.

It is also notable that over the first phase as a whole, 11 cities show a reduction in population; for 10 of them there was a concurrent decrease in the sex ratio. The decrease in the ratio had accompanied population increase for as many as 68 of the remaining 97 cities, which recorded an increase in population over the phase. In the second phase, we have no instance of decrease in

population. All the 113 cities in the set record an increase in population; 78 of them witnessed a decrease and 34, an increase in the ratio, while the remaining one city did not show any change in the ratio. For the period as a whole, it is evident that the decrease in ratio was much more common than the increase.

Further, we give a cross-tabulation of the cities according to the amount of decennial change in the two variables for each decade in Appendix Table No. 12. A comparison of the distribution from decade to decade suggests that there obtained no correlation between the behaviour of the two variables, particularly in the first three decades, for which the trend of increase in population was much less common. For the remaining three decades, the table is abridged as follows :

Table 62: Distribution of cities according to rate of growth of population and change in sex ratio during the decade

Sex ratio change	Rate of growth of population								
	1931-41			1941-51			1951-61		
	<25	25-50	50+	<25	25-50	50+	<25	25-50	50+
Increase									
100+	1	1	—	2	4	4	—	—	—
50-99	2	10	2	3	15	8	2	2	1
<50	22	26	9	6	29	12	14	12	8
Nil	—	1	—	—	1	—	—	—	—
Decrease									
<50	11	16	5	4	12	7	21	28	8
50-99	—	4	1	—	2	—	4	5	4
100+	—	—	2	—	—	—	—	—	3
	36	58	19	15	64	31	41	47	24

It will be seen that the general trend was one of increase in sex ratio in 1931-41 and, to a greater extent, also in 1941-51. In 1951-61, on the other hand, the bulk of the cities experienced a decrease in sex ratio. The proportion of cities experiencing an

increase in ratio of more than 100 points was sizable only for 1941-51. Four of the 31 cities, recording a growth of more than 50 per cent, witnessed concurrently a sex ratio increase of more than 100 points. Seven other cities in contrast showed a decrease in the ratio but in amount the decrease was not substantial. Both in 1931-41 and 1951-61, we have instances where substantial decrease in sex ratio had accompanied high rates of population growth, while none of the cities showing growth rates of more than 50 per cent recorded increase in the ratio of 100 points or more. In all the three decades, the bulk of the cities are bracketed in the two ranges recording a change of less than 50 points in sex ratio.

For these three decades, we attempted to correlate the per cent rate of population growth to per cent change in sex ratio. This exercise does not indicate any significant correlation for 1941-51. For 1931-41, the value of the coefficient of correlation is -0.608 and for 1951-61 -0.423 . It would thus appear that change in sex ratio was inversely correlated to the rate of population growth. The inference that we might draw for these two decades is that higher the rate of population growth, the smaller had been the increase, or the larger had been the decrease, in the sex ratio.

Further, we conducted also an exercise to correlate the rate of decennial growth with the level of the sex ratio at the end of the decade. Here too, no significant correlation obtains for 1941-51. For the other two decades, the values of the coefficient are significant; for 1931-41 it is -0.524 and for 1951-61 -0.319 . This may be taken to imply that higher the decennial rate of population growth, the smaller had been the sex ratio at the end of the decade.

For an over-all view of the relationship between the two variables for the period as a whole, we further give below a cross-classification of the cities according to per cent variation in population between 1901 and 1961 and change in their sex ratio over the period.

It will be seen that the distribution is fairly wide in respect of cities with decreasing as well as those with increasing ratios. The cities showing an increase of 100 or more points in sex ratio are placed in the three middle ranges, indicating moderate growth of population during the period. The decrease in ratio amounting to more than 100 points was reported for 29 cities; their growth rate varied from less than 100 per cent to more than 1000 per cent.

Table 63: Distribution of cities according to per cent rate of growth and variation in sex ratio of population—1901-1961.

<i>Growth rate %</i>	<i>Increase in S.R. (Points)</i>				<i>Decrease in S.R. (Points)</i>				
	100+	50-99	0-49	Total	100+	50-99	0-49	Total	Total
<100	—	—	—	—	3	—	—	3	3
100-200	—	—	—	—	3	2	2	7	7
200-300	—	2	2	4	7	7	5	19	23
300-400	1	2	4	7	7	4	2	13	20
400-500	1	—	2	3	2	6	4	12	15
500-1000	1	1	9	11	5	3	9	17	28
1000-2000	—	—	3	3	2	3	2	7	10
2000+	—	—	1	1	—	1	—	1	2
All	3	5	21	29	29	26	24	79	108

If we confine attention to cities showing population increase of more than a 1000 per cent over the period, it will be seen that only 4 out of 12 such cities witnessed an increase in the ratio but the amount of increase was less than 50 points in each case. Two of the remaining 8, however, recorded a decrease of more than 100 points in sex ratio, while for another 2 the decrease was less than 50 points. On the whole, while bulk of the cities recorded a reduction in sex ratio over the period, there did not obtain any correlation between either the volume or the rate of growth of population and the amount of change in sex ratio.

Sex Ratio of Decennial Variation in Population

Since the change in sex ratio results from differential variation in the size of male and female population, it may be interesting to consider also the sex ratio of the increase or the decrease in population during a given decade and compare it with the sex ratio of the initial population. Accordingly, for each city we compare the size of male and female population as between two consecutive census years in order to derive the sex ratio of the population added or reduced during the decade. This computation presents no difficulty when the direction of change in the size of population is the same for both the sexes. But where the

direction differs between them, the sex ratio of the population will no doubt change but it is not possible to compute the sex ratio of the additional population.

Out of the total of 671 decennial variations relating to the 113 cities in the set such dissimilarity between the sexes in the direction of change in the size of population has been reported in 33 instances relating to 29 of these cities, 4 of them having recorded it in two of the six decades. The relevant data indicative of the resulting changes in sex ratio are given in Table 64 (page 145).

The bulk of these instances relate to the first three decades. We have 12 such cases for 1901-11, 14 for 1911-21 and 5 for 1921-31. No such instance is reported for 1931-41 and only one each was reported for 1941-51 and 1951-61. 18 of these cases represent decennial increases in size of population and the remaining 15, a decennial decrease. The more common among them is the phenomenon of decrease in female population corresponded by an increase in the male counterpart. This has been the case particularly in the first two decades. Among the 12 instances for 1901-11, we have only one case of Malegaon which shows an increase of 104 in female population as against a decrease of 98 in the male population; the increase in population was thus nominal but the sex ratio had increased during the decade by 20 points from 922 to 942. In the next decade, we have 2 instances of Jammu and Patiala recording similarly an increase of female as against a decrease in male population; in the case of Jammu the population had decreased in the decade by less than one per cent, while for Patiala it had increased by over one per cent. The corresponding changes in sex ratio amounted to 9 and 30 points respectively. During 1921-31, in contrast, in 4 of the 5 instances, increases in female population was corresponded by a decrease in the male population. Most outstanding amongst these is a 132-point increase in the sex ratio of Ajmer resulting from an increase in its female population by 7,595 as against a decrease of 1,583 in its male population. Of the two exceptional cases of the latter decades, Shahjehanpur recorded an increase of its sex ratio by 80 points in 1941-51, which had resulted from a decrease in male population of 5,560 as against an increase in female population of 232. In the remaining case of Rampur, there was a decrease of 88 points in the sex ratio in 1951-61 resulting from an increase of 3,897 males and a decrease of 2,767 females in its population. Among these

Table 64: List of variations in sex ratio resulting from sex differential in the direction of change in the size of population.

Decade	City	Variation in Population			Initial S.R.	S.R. at the end of the decade	Change in S.R. of (No. of points)
		Male	Female	Total			
1901-11	Patna	+3803	-2435	+1366	1011	922	-89
	Ambala	+3475	-1982	+1493	720	629	-91
	Allahabad	+4446	-4881	-335	875	785	-90
	Lucknow	+3905	-8030	-4125	875	794	-81
	Burdwan	+1114	-215	+899	804	750	-54
	Jullundur	+2517	-934	+1583	869	741	-128
	Mathura	+15	-1874	-1859	869	811	-58
	Bhagalpur	+218	-1629	-1411	907	861	-46
	Agra	+1432	-4005	-2573	882	830	-52
	Ujjain	+35	-632	-597	815	883	-68
	Malegaon	-98	+104	+6	922	942	+20
	Mecrut	+720	-2628	-1908	801	753	-48
	Baly	+1047	-232	+815	575	521	-54
	South Suburbs	+3108	-1024	+2084	694	629	-65
1911-21	Jammu	-241	+21	-220	639	648	+9
	Patiala	-187	+744	+557	638	669	+30
	Varanasi	+357	-5755	-5398	926	869	-57
	Saharanpur	+624	-1213	-589	775	728	-47
	Agra	+2716	-2633	+83	830	783	-47
	Aligarh	+737	-118	+619	779	761	-18
	Jhansi	+593	-1858	-1265	831	776	-55
	Bareilly	+629	-632	-3	834	817	-17
	Rampur	+249	-1409	-1160	914	872	-42
	Shahjahanpur	+1336	-498	+838	951	905	-46
	Vellore	+1068	-604	+464	1087	1017	-70
	Thanjavur	+576	-1004	-428	1097	1041	-56
	Bombay	-1699	+25071	+23372	535	567	+32
	Varanasi	+8850	-1222	+7628	869	792	-77
1921-31	Nasik	-1407	+1735	+328	811	907	+96
	Ajmer	-1383	+7595	+6012	679	311	+368
	Dehra Dun	-681	+2750	+2069	462	552	+90
	Shahajahanpur	-5360	+232	-5328	775	855	+80
	Rampur	+3897	-2767	+1130	938	850	-88

instances, the largest volume of change of size of population represented an increase of 23,372 for Bombay in 1921-31. This change resulted from an increase of 25,071 females and a decrease of 1,699 males in the population, the ratio consequently increasing by 32 points from 535 to 567.

We may now proceed to consider the remaining 638 decennial changes in which the direction of change was the same for the two sexes. Of these only 64 instances represent a decrease in population; 34 of these decreases were recorded in 1901-11, 23 in 1911-21 and 4 in 1921-31. The remaining 574 instances represent increase in population, the increasing trend being entirely general in the three decades of the second phase. We distribute these cities in Table 65 (page 147) according to the level of the sex ratio of these decennial variations.

Directing attention first to the instances of decrease in population, it will be seen that the accompanying ratios of the decrease are quite high in a number of cases. The ratio exceeded unity in 24 of the 34 instances in 1901-11, 15 of the 23 instances in 1911-21, 2 of the 4 instances in 1921-31 and in the one instance of 1951-61. The highest amongst these ratios was 11,334 for Saharanpur in 1901-11, followed by 10,160 for Bareilly in the same decade. In the former case, there was a decrease of 3,208 females and of 276 males in the population. The corresponding figures for the latter city are 3,373 and 332 respectively. For 18 of these cities the ratio of decennial decrease had exceeded 1,500. The volume of decrease in population among them varied from only 420 for Thanā in 1901-11 to 16,891 for Jaipur in 1911-21; while the rate of decrease varied from only 1.4 per cent for Kakinada in 1911-21 to 12.3 per cent for Jaipur in the same decade. Arranging the cities according to the rate of decrease, Jaipur is followed by Patna with 11.9 per cent in 1911-21 and then by Gorakhpur with 11.3 per cent in 1901-11. For Jaipur, the decrease of 6,464 in male population was corresponded by a decrease of 10,427 in female population. The corresponding figures for the next two cities in the order mentioned above are 5,064 and 11,113, and 1,362 and 5,894 respectively.

At the other end, we have 8 cities for which the ratio of decennial decrease was less than 500. Seven of these instances relate to the first three decades of the period. Among them the smallest ratio was recorded by Kolar Gold Fields in 1921-31, during which its

Table 65: Distribution of cities according to sex ratio of decennial variation in population.

<i>Variation in population</i>	<i>S.R.</i>	1901-11	1911-21	1921-31	1931-41	1941-51	1951-61
Decrease	1500+	10	7	1	—	—	—
	1200-1500	6	7		—	—	1
	1100-1200	4	—	1	—	—	—
	1000-1100	4	1	—	—	—	—
	900-1000	2	2	—	—	—	—
	800-900	3	2	—	—	1	—
	700-800	2	—	—	—	—	—
	600-700	—	—	—	—	—	—
	500-600	1	—	1	—	—	—
	<500	2	4	1	—	1	—
Increase	1500+	1	0	2	4	3	1
	1200-1500	3	2	4	9	6	1
	1100-1200	4	3	—	5	4	2
	1000-1100	4	3	6	10	30	3
	900-1000	11	4	12	27	35	17
	800-900	7	15	16	22	22	47
	700-800	8	11	25	14	4	21
	600-700	1	11	19	9	3	11
	500-600	6	6	9	10	3	4
	<500	17	19	11	3	0	4
	400-500	2	4	4	3	—	2
	300-400	6	7	5	—	—	1
	200-300	5	2	2	—	—	1
	100-200	4	5	—	—	—	1
	<100	—	1	—	—	—	—

female population decreased by 143 while the male population had decreased by 2,436. The remaining instance reported for 1941-51 relates to Amritsar, whose population decreased in 1941-51 by 54,896 of which 37,980 were males and 16,916 were females.

Referring now to the second part of the table, it will be seen that there was a clear tendency of the range of distribution getting narrower from decade to decade. Concentration in the middle ranges is evident particularly for the latter three decades. The combined frequency of the three ranges, extending from 700 to 1000, rose from only 26 in 1901-11 to 53 in 1921-31, to 63 in 1931-41 and to 85 in 1951-61. There was substantial reduction in the number of cities displaying ratios of decennial increase smaller than 700 between 1921-31 and 1931-41 and again in 1941-51. This was, however, followed by a reversal of the trend in the final decade, which recorded as many as 10 cities with ratios smaller than 700 as against the corresponding number of only 7 cities in 1941-51. The latter decade stands out as recording the largest number of cities with ratios greater than unity. As the table indicates, we have here 11 instances where the ratio of decennial decrease had exceeded 1500. The highest ratio was reported among them for Dehradun for 1951-61, which recorded in that decade an increase of 9,839 females as against an increase of 2,286 males in its population. Among these cities the volume of increase was the largest for Howrah for 1941-51; the decade added 32,885 females and 21,453 males to its population. Asansol in that decade also recorded a substantial increase in its population—17,274 females and 8,015 males. Among the remaining cities the case of Ahmedabad is notable for 1921-31, when 25,798 females and 13,984 males were added to its population.

At the other end of the scale, we have 10 instances where the sex ratio of decennial increase was smaller than 200. These relate to the first two decades of the period. The smallest ratio comes to only 86 for Dehradun in 1911-21, whose population increased during the decade by 8,290 of which only 655 were females. In terms of volume, the largest increase in population was 16,295 for Howrah in 1911-21; this comprised 2,389 females and 13,906 males. Apart from this, for Madras in 1901-11, the population increase amounted to 14,453 of which only 1,889 were females. Of the latter three decades, in 1941-51 we have no instance of the

ratio of increase being smaller than 600. In 1931-41 there were three and in 1951-61, 4 such cases. Outstanding amongst them was the ratio of 436 for Calcutta in 1931-41 and of 207 for Mysore in 1951-61. In the former case, the increase in population amounted to 946,275 of which 287,163 were females and in the latter, to 9,452, of which 1,636 were females.

It may be noted that the same city recorded quite different ratios of decennial variation in population from decade to decade. This is true also of the last three decades over which most of the cities experienced continual growth of population. If we consider in this connection the 26 cities of 1901, the general experience was a sharp increase in the ratio between 1931-41 and 1941-51, followed by a sizable decrease between 1941-51 and 1951-61. Outstanding among these cases are provided by Calcutta, Howrah, Barcilly, Gwalior and Hyderabad. The ratio of decennial increase for Calcutta moved up from 436 in 1931-41 to 1,430 in 1941-51 and decreased to 1,111 in 1951-61. For Howrah, there was a corresponding increase from 516 to 1,533, followed by a large decrease to 712. A similar trend is observed for Hyderabad, where the ratio rose from 985 to 1,126 and then sharply decreased to 517. We have, however, some exceptions recording successive declines in the ratio, though the decreases have been quite moderate. Of the four such cases, Bangalore recorded a decrease from 889 to 864 and then to 858, Madras from 972 to 937 to 813, Tiruchirappally from 997 to 947 to 864 and Madurai from 975 to 936 to 871. Significantly all these cities are from southern India.

For an over-all view of the sex ratio differential displayed by the process of growth, we may finally consider the proportion of females in the total volume of growth of population between 1901 and 1961. For this purpose we give below a cross-classification of cities according to the volume of increase over the period and its female proportion in percentage terms.

It will be seen that we have a solitary exception of Kolar Gold Fields in whose case females constituted in fact 56.2 per cent of the total increase in population between 1901 and 1961. For 61 other cities, the female proportion varied from 45 to 50 per cent; among them it was over 49 per cent for 8 cities, led by Mangalore and Alleppey both with 49.8 per cent. At the other end, we have 13 cities for which the proportion was less than 40 per cent. The smallest proportion among them was 33.2 per cent for Gauhati.

Table 66: Distribution of cities according to volume of population growth between 1901 and 1961 and its female proportion

<i>Volume of growth</i> (-000)	<i>Per cent female</i>				<i>Total</i>
	<40	40-45	45-50	50+	
1000+	1	3	2	—	6
500-1000	—	1	3	—	4
250-500	1	6	4	—	11
200-250	1	—	5	—	6
150-200	1	2	14	—	17
125-150	1	3	6	—	10
100-125	3	6	8	1	18
75-100	2	5	12	—	19
50-75	1	6	7	—	14
<50	2	1	—	—	3
Total	13	33	61	1	108

From the table no clear indication is available about the relationship between the volume of growth and its sex composition. Among the 13 cities, showing female content to be smaller than 40 per cent, we have Calcutta with the volume of increase amounting to nearly 2 million, while at the other end we have Shahjehanpur with an increase of about 41,000 and Darbhanga of less than 37,000. Apart from this, it is perhaps significant that cities with less than 40 per cent of female content in the increase form a sizable group among those whose volume of growth was less than 125 thousand.

If we separate from the above cities, those which were classified as cities in 1901, their distribution according to volume is confined to first five ranges extending from 150 thousand to more than a million. For 3 of these cities, namely, Calcutta, Howrah and Patna, the female proportion of the increase was slightly smaller than 40 per cent. At the other end, for 13 of them it exceeded 45 per cent. At the highest it was, however, only 48.3 per cent for Madurai among them.

Finally, we may compare the sex ratio of the decennial increase with the ratio of respective population at the beginning of each decade. Here again, we may confine attention to the last three decades, in which the increasing trend of population was general among the cities. As will be inferred from our earlier distribution of cities according to the direction of change of sex ratio, the ratio for the decennial increase was higher than the ratio of the population at the beginning of the decade for 73 of the 113 cities in the set in 1931-41, for 86 cities in 1941-51 and for only 39 cities in 1951-61. Correspondingly, the cities for which it was comparatively lower numbered 39 in 1931-41, 26 in 1941-51 and 74 in 1951-61. However, as noted earlier, for 3 cities in 1941-51 and 2 cities in 1951-61 it has not been possible to compute sex ratio of the additional population on account of the difference in the direction of change in the size of population between the sexes. For a broad appraisal of the relation between the initial and incremental sex ratio we give in Table 67 (page 152) a cross-classification of the cities according to the two ratios for these three decades.

In each decade, the ratio of the increment differed from that of the initial population. The difference, however, is not reflected by the above classification in respect of several of these cities; the range interval of the initial ratio is the same as of the ratio for the population added during the decade for 37 cities in 1931-41, 26 in 1941-51 and 34 in 1951-61. It is also notable that the range interval of the additional population ratio is lower than that of the initial ratio for only 19 cities in 1931-41 and for only 16 cities in 1941-51 but for as many as 53 cities in 1951-61. Correspondingly, the ratio for the additional population is placed in higher range intervals in respect of 57 cities in 1931-41, 68 cities in 1941-51 and only 24 cities in 1951-61. Confining attention to the latest of these decades, it will be seen that we have 4 cities with ratios smaller than 600 in 1951, for 2 of them the ratio of the additional population was also smaller than 600. For Gauhati of the two, the difference between the two ratios was 105 points, while for Baly it was only 38 points. The remaining cities recorded ratios of additional population higher than 1000. For Calcutta, the difference between the two ratios was 531 points, while for Bhatpara it was as high as 958 points.

At the other end, we have 7 cities with initial ratios higher

Table 67. Distribution of cities according to the sex ratio of initial population and of the population added during a decade, 1931-41, 1941-51 and 1951-61

Initial S.R.		S.R. for the population added during the decade						Total
		<600	600-700	700-800	800-900	900-1000	1000+	
1931-4	<600	6	1	3	—	—	—	10
	600-700	3	4	1	3	—	—	11
	700-800	—	—	9	4	5	3	24
	800-900	2	2	1	9	13	12	39
	900-1000	1	—	—	3	8	12	24
	1000+	—	—	—	3	1	1	5
	All	13	9	14	22	27	28	113
1941-51	<600	1	1	—	4	—	3	9
	600-700	1	—	—	3	2	5	11
	700-800	—	1	1	3	6	9	20
	800-900	1	1	2	5	9	12	30
	900-1000	—	—	1	5	16	11	33
	1000+	—	—	—	2	2	3	7
	All	3	3	4	22	35	43	110
1951-61	<600	2	—	—	—	—	2	4
	600-700	—	2	1	2	—	—	5
	700-800	—	2	5	8	3	2	20
	800-900	1	5	9	16	3	2	36
	900-1000	5	2	5	17	9	1	39
	1000+	—	—	1	4	2	—	7
	All	8	11	21	47	17	7	111

than 1000. For each of them, the ratio of the additional population was smaller. The difference between the two ranged among them from 59 points for Nagercoil to 301 for Thanjavur. Among the cities placed in the middle intervals according to initial ratios, the most outstanding excess of the ratio of the additional population over that of the initial is reported to be 3,595 for Dehradun; the additional population represented in this case only 8.4 per cent of the initial population, so that, in spite of exceptionally high proportion of females in the population added during the decade, its sex ratio had moved up to only 804 in 1961. As against this, we have several cases where the ratio of the additional population is considerably smaller than that of the initial population. We have here some 30 instances, where the difference has been greater than 100 points. Among them the excess of the initial over the ratio for the additional population was at the maximum 74¹/₅ points for Mysore. The decennial increase of population was, however, only 3.9 per cent and the ratio moved down during the decade from 947 to 904. A more outstanding instance of change in the sex ratio is here reported for the Durg town group, whose 1951 population had a ratio of 980. There was an increase of 550 per cent in its population. The ratio of the population added during the decade was 540 only, the difference between the two ratios being 440. The resulting reduction in the sex ratio of the population during the decade amounted to 386 points, the 1961 ratio being 594 only.

Size and Sex Ratio of Cities

Finally, we consider the relationship between the size and sex ratio of cities for the different census years of the period. As a first step, we will classify the cities according to their size and indicate average ratio of cities in each size class as shown below :

As noted earlier, the lowest size class continued to claim the largest number of cities though its relative importance, in terms especially of its proportion in the aggregate population of cities, had tended to decline. The highest size class was not represented in 1901 and its proportion in the aggregate rose sharply in the last two decades of the period. The concurrent variations in the sex ratio of these sub-aggregates of city population, noted in the above table, clearly indicate that the population living in cities in the

Table 68: Sex ratio of population of cities classified by size

	Size of cities (—000)				
	100-250	250-500	500-1000	1000+	All
1901	852	910	648	—	785
1911	827	794	942	515	730
1921	800	799	913	513	709
1931	811	785	899	519	724
1941	827	743	810	515	721
1951	877	824	792	697	789
1961	849	843	789	743	799

highest range consistently recorded the lowest sex ratio. As will be seen from the table, from 1911 to 1931, cities with a population between 500,000 and a million showed the highest ratio among these four classes. In 1941, however, the highest ratio was recorded by the lowest class. For the remaining 2 census years of 1951 and 1961, the ratio tends to decrease as we move up the size classes. The ratio for the over-all aggregate of city population is closer to the one for the population of cities in the higher of the two intermediate classes, with a population of 500,000 and one million.

The impression of the continuing correlation between the size and sex ratio of cities is further strengthened by the frequency distribution of cities in different size classes according to sex ratio as shown below :

It will be seen that 2 out of the 3 largest cities of 1901 are placed in the lowest sex ratio interval. At the other end, 4 of the 21 cities in the lowest size class are placed in the highest sex ratio interval. A majority of them, however, are placed in the middle interval of the range for sex ratio. The distribution for 1931 and 1961 is similar. In 1931, the 2 largest cities are again placed in the lowest sex ratio interval. It is notable, however, that 3 of the 5 cities added to the lowest size class are placed in the lowest sex ratio interval. Confining attention here to the 10 cities, with sex ratio below 750, it is notable that half of the cities had a population of

Table 69: Distribution of cities in different size classes according to sex ratio

Census year	S.R. Ranges	Size of city (population in—000)				All
		100-250	250-500	500-1000	1000+	
1901	950+	4	—	1	—	5
	750-950	15	2	—	—	17
	<750	2	—	2	—	4
	All	21	2	3	—	26
1931	950+	4	—	—	—	4
	750-950	17	4	1	—	22
	<750	5	3	—	2	10
	All	26	7	1	2	36
1961	950+	15	2	—	—	17
	750-950	54	19	4	5	82
	<750	9	1	2	2	14
	All	78	22	6	7	113

less than 250,000. This proportion, however, is much smaller than the proportion of the corresponding size class in the total number of cities. In 1961, we have 7 cities with a population of more than a million each; for 2 of them, the sex ratio was less than 750 and for remaining 5, less than 950. In the next size class, we have 6 cities with ratios less than 950, for 2 of which the ratio was less than 750. As many as 9 of the 14 cities with ratio less than 750 had a population of less than 250,000; this proportion is much closer to the proportion formed by cities in this size class in the total number of cities.

Further, for an idea of the degree of correlation between the two variables we have computed coefficients of correlation for the three sets of cities as indicated below.

Table 70 : Correlation between the size and sex ratio of cities

Year	Coefficients		
	Sub-set I	Sub-set II	Set
1901	—0.55	—0.55	—0.24
1931	—0.53	—0.54	—0.24
1961	—0.50	—0.45	—0.45

All the above values of the coefficient are statistically significant, indicative of negative relationship between the size and sex ratio of cities. In the II sub-set the number of cities varies as it is confined to the places that were classified as cities in each census year. Between 1901 and 1931, the number of cities increased from 26 to 36 but the value of the coefficient remained practically the same. Between 1931 and 1961, the number increased to 113 but the value of the coefficient was reduced somewhat. It is, however, not possible to suggest that the degree of correlation had thereby been reduced. Sub-set I is confined to places which enjoyed the status of a city from the beginning. Here, the number of cities remains therefore unchanged. The values given in the table indicate a slight tendency of the degree of correlation to decrease over time. For the set as a whole, the number of cities remains almost the same throughout the period; there was an addition of only 5 cities to the original list of 108 cities. The value of coefficient is the same for 1901 and 1931 but it is substantially higher for 1961. Thus, it can be said that with the progressive acquisition of the status as a city by the places in the set, there was an increase in the degree of negative correlation between the two variables under consideration.

In conclusion, we may refer to the distribution of cities according to sex ratio for 1961. We have here 113 cities whose aggregate population records a ratio of 799. The standard deviation is 112 points, whereas the range of inter-city variation extends from 497 to 1,016. It is notable, however, that the average, among the cities arranged in an ascending order of the sex ratio, is placed between 32nd and 33rd city; in other words, we have 32 cities with ratios smaller than the weighted average and 81 with higher

ratios. If we consider the size of standard deviation, we have only 10 cities among those with lower ratios, in whose case the deviation from the weighted average is larger than the standard deviation. On the other hand, those, among the 81 with higher ratios, for whom the deviation is greater number 30 in all. If we confine ourselves to the frequency distribution given in the above Table 69 we have 14 cities with low ratios and 17 others with high ratios. In the former category we have Calcutta, Howrah, Bombay and Kanpur, from amongst the largest cities, while in the latter group of 17 we have Trivandrum and Madurai from amongst the better known cities of India. It is interesting to note that these 14 cities account for 43.4 per cent of the aggregate population of cities, while the proportion accounted for by the 17 cities with high sex ratios is only 12.8 per cent.

CHAPTER SEVEN

OTHER SELECTED CHARACTERISTICS OF CITIES

Our interest in considering other characteristics of population of individual cities is to see if the inter-city variation in each of these characteristics is in any way related to the inter-city variation in the size and sex ratio of population. This reference is limited to the 1961 Census data, which are presumed to indicate the current or the most recent situation. The characteristics, which we will consider on the basis of these data, too are limited in number. We will consider in particular the broad age-structure, the migratory content and economic function as indicated by the distribution of the labour force according to industry. In addition, we will refer to the geographical distribution of cities in terms, broadly, of the census zones.

Age

The age-sex break-downs for individual cities are available in terms of very broad age-groups. The age span is divided only in four class intervals, namely, 0-14, 15-34, 35-59 and 60 or above. On the basis of these data, Table 71 (page 159) gives percentage distribution by age groups for the total national population and its rural, urban and city segments.

It will be seen that in the combined total of male and female populations, the children's group claims the largest proportion in all the four categories of population. But the actual proportion is smaller for the city as compared to the urban population, while the proportion for the latter is in turn smaller than the corresponding figure for rural population. The next largest group is of youth, i.e., of persons of 15 to 34 years in age, for the total population as also for its three segments. The comparative position as between the segments is, however, different. Here the proportion for the city population is somewhat greater as compared to the total urban population and much greater as compared to the rural population. The combined proportion of these two groups comes to 74.6 per cent for the city population as against 72.8 per cent for the rural population. It is evident that the population in

Table 71: Per cent distribution of population by sex and broad age-groups

Sex	Age in years	All-India	Rural	Urban	City
Male	0-14	21.1	21.3	20.2	19.5
	15-34	16.3	15.5	19.5	21.1
	35-59	11.3	11.2	12.1	12.7
	60+	2.8	2.9	2.4	2.3
	Total	51.5	50.9	54.2	55.6
Female	0-14	20.0	20.2	18.8	18.1
	15-34	15.8	15.8	15.9	15.9
	35-59	9.9	10.2	8.8	8.3
	60+	2.8	2.9	2.3	2.1
	Total	48.5	49.1	45.8	44.4
Both	0-14	41.1	41.5	39.0	37.6
	15-34	32.1	31.3	35.4	37.0
	35-59	21.2	21.4	20.9	21.0
	60+	5.6	5.8	4.7	4.4
	Total	100.0	100.0	100.0	100.0

cities is younger as compared to the rural population.

The comparative position for the female section of the population is similar. As we move up the age ladder, the proportion gets progressively reduced in all the four categories of population. The female children claim 20 per cent of the total all-India population, while the corresponding proportion for the city population is 18.1 per cent. The difference in the proportion between rural, urban and city populations is the least for females in the age-group 15-34. Turning to the distribution for the males it will be seen that children again claim the largest proportion in the rural and urban, as well as in all-India population total but in the total

population of cities, they constitute a smaller proportion as compared to the proportion of youth in the age-group 15-34. It will be seen that the differences for the remaining two age-groups as between these categories of population are not sizable. The combined proportion of all males, below 35 years in age, is 40.6 per cent for the city population as against 39.7 per cent for the total urban population and 36.8 per cent for the rural population. It is notable that on the whole the male-female differentials are compensatory in nature for each of the categories of population, so that the differences in over-all age structure are smaller than those relating to its male and female sections considered separately.

Confining attention to the distribution of the aggregate city population given in the above table, it will be seen that the highest proportion among the eight age classes for the two sexes comes to 21.1 per cent for youngmen in the age-group 15-34 years. Boys come next with 19.5 per cent followed by girls with 18.5 per cent. Young women in 15-34 age-group occupy the next position with 15.9 per cent. At the other end, the smallest proportion comes to only 2.1 per cent for old women; old men claim a little higher proportion amounting to 2.3 per cent.

A perusal of the percentage distribution of individual cities which indicates the ordering of the above eight age-sex groups according to the proportion claimed by each group in the total population is precisely the same for 21 of the 113 cities. There are 33 other cities where the two places at the top are claimed by either of the two male groups below the age of 35. The general arrangement is indicative of the children accounting for comparatively very large proportion of the population and the old persons, both male and female, claiming very small shares in the total. It is notable that out of the 113 such arrangements for individual cities in 68 cases the highest proportion is claimed by boys and in 42 other cases the highest proportion accrues to young men between 15 and 34 years in age. There remain three rather unusual cases where the first position in the order is claimed by females; by girls below 15 in the case of Rajahamundry and Eluru, and by women under 35 in the case of Palayamcottai. About the general pattern of distribution for individual cities, it is sufficient to note that the lowest two places in the order of importance are claimed invariably by either old men or old women. As between these two old age-groups, the difference in the proportion is quite small, in favour of

old men in 57 cases and of old women in the remaining 56 cases.

Further, we may consider age distribution for the combined male and female population. In this case, we get the distribution over 4 groups, namely, children under 15, youth from 15 to 34, adults from 35 to 59 and old persons of 60 and above. In the aggregate city population, children account for 37.6 per cent, youth for 37.0 per cent, adults for 21.0 per cent and old persons for only 4.4 per cent. The persons below 35 thus form nearly three-fourths of the total population.

From city to city the proportion varies in respect of each of these groups. For the numerically least important group—of old persons—the variation in the proportion extends from only 2.4 per cent reported for Rampur, Hubli-Dharwar and Eluru to 6.2 per cent for Baroda. The ratio of the range to the mean proportion comes for this group to 86 per cent. The next higher group in numerical importance is constituted by the adults. Here the proportion varies from 16.5 per cent for Hubli-Dharwar to 25 per cent for Baly, the mean proportion being 21 per cent; and the ratio of the range to the mean is around 40 per cent only. The inter-city variance thus appears for the adult group to be much smaller than for the above group of old persons.

For youth, the range of inter-city variation in the proportion is more extensive; it extends from 30.7 per cent for Mirzapur to 52.2 per cent for the above noted town group of Hubli-Dharwar. For the children's group, the range of variation extends from 28.9 per cent for Hubli-Dharwar to 44.1 per cent for Belgaum. The ratio of the range of variation to the mean proportion is 40.2 per cent for the children's group and 57.9 per cent for the youth; this may be taken to indicate that the inter-city variation in relative importance is smaller for children than for the youth. Among the four age-groups the variance would appear to be the least for adults and the most for old persons. However, it is notable that the difference in the amount of variation is quite small between the children and adults.

If we compare the detailed distribution of cities according to proportion of children with the one according to the proportion of youth, we get an impression of some compensatory effect for the distribution according to the combined proportion of these two groups, that is, the distribution according to the proportion claimed by all persons below 35 years in age. For the children's group,

28 out of 113 cities record a proportion lower than that of the aggregate city population, while in respect of youth we have as many as 85 cities with the proportion below that of the aggregate. Consider further, the frequency distribution of the cities according to the proportion of each of these two groups as given below.

Table 72: Distribution of cities according to proportion of children and youth

Range	Children	Youth
<32.5	6	6
32.5-35.0	3	40
35.0-37.5	18	47
37.5-40.0	47	10
40.0-42.5	30	6
42.5-45.0	9	2
45.0+	—	2
TOTAL	113	113

It will be seen that the modal interval is 37.5 to 40.0 for the children but 35.0 to 37.5 for the youth. The next largest frequency is recorded by 40.0 to 42.5 interval for the children but by the one of 32.5 to 35.0 for the youth. Thus for 77 cities, the proportion of children lies between 37.5 to 42.5 per cent, while the proportion of youth extends from 32.5 to 37.5 per cent for as many as 87 cities. The combined proportion extends from 70.5 for Baly to only 81.5 for Hubli-Dharwar town group. For as many as 100 of these cities the proportion in fact extends from 72.5 to 77.5 per cent only. The inter-city variation in the proportion of persons below 35 is not at all substantial; the ratio of the range to the mean for the combined group is only 12.8 per cent, as compared to the above noted ratios of 40.2 per cent for children and 57.9 per cent for youth.

Additionally, we have sought to correlate the proportion claimed by each of the four groups to the size of the total population. This exercise was first conducted for the entire set of

113 cities but the resulting values of coefficients of correlation were not quite significant. Therefore, the coefficients of correlation were computed separately for each of the broad-size class intervals into which the set was broken up in our preceding discussion (Table 50). This exercise indicated that the correlation appeared beyond 2.5 lakhs in the range of inter-city variation. For the 78 cities below this level, the correlation coefficients are not statistically significant. For the remaining 35 cities, with the range extending to over four million, the values of coefficients indicate significant degrees of correlation. This is true especially in respect of the proportions claimed by children, adults and old persons. For youth, in the age-group of 15-34 years, the value of the coefficient is, however, indicative of the absence of correlation even at a 10 per cent level of significance. It is notable, however, that for the adults in the age-group 35-59, the degree of correlation is high and the proportion claimed by the combined group of youths and adults, i.e. all persons from 15 to 59 years, is positively correlated to the size of population, the coefficient of correlation being as high as +0.66. For both the other groups, children and old persons, we get negative correlation; the value of the coefficient is —0.63 for the children's group and —0.34 for the persons in old age.

Turning now to age-specific sex ratios we indicate below the ratios for these age-groups in respect of different categories of aggregate population considered above.

Table 73: Sex ratios for broad age-groups

Age-group	India	Rural	Urban	City
0-14	946	950	930	927
15-34	972	1016	813	753
35-59	872	907	727	655
60+	1000	1004	977	934

It will be seen that the city population exhibits the lowest sex ratio in respect of each age-group. It is significant, however, that the actual difference is the least, amongst the age-groups, for the children's group. As compared to the ratio for the total

urban population, the ratio for the city population is smaller by only 3 points for the children's group but it is smaller by 43, 60 and 72 points for old persons, the youth and adults respectively. Alternatively, it may be noted that the proportion of females in the adult group in the city population is only 39.6 per cent, while at the other end the proportion of girls in the children's group is 48.1 per cent and of women in the group of old persons, 48.3 per cent.

Examination of the corresponding data for individual cities does not indicate any clear relationship between the size of city and the sex ratio for any of the age-groups. We may, however, indicate the differences in the distribution of the two broad-size categories mentioned above according to sex ratio of each individual age-group (Table 74, page 165).

It will be seen that the differences in the pattern of distribution between the small and large cities are marginal. For the children's group as well as for old persons, there obtains preponderance of cities with ratios higher than 900 both amongst the small and the large cities. For the youth, the concentration of cities in the two middle ranges from 700 to 900, is comparatively greater in degree for the large cities. Similarly, greater degree of concentration is evident for the large cities in the two ranges below 800 in respect of the adult group. In general, the proportions of cities with ratios greater than 900 is comparatively smaller for the large cities in respect of all the different age-groups.

We may proceed further to consider different measures of dispersion to indicate inter-city variations in sex ratio of individual age-groups for all cities without reference to the size of population. For this purpose, we give in Table 75 (page 166) the relevant four sets of distribution of the cities and also the measures of dispersion for each of these sets.

The principal difference in the frequency distribution of cities as between the age-groups is the high degree of concentration in the higher ranges of the ratios for the children's group; as many as 86 cities show a ratio of 900 or more for the children's group and for the remaining 27 cities the ratio is smaller but it is still higher than 800. For the group of old persons too, we have a preponderance of cities with ratio of 900 or more but here we have 5 cities with ratios less than 700, and 16 other cities with ratios less than 800. Compared to this, the proportion of

Table 74: Distribution of cities in the two broad size categories according to sex ratio of each individual age-group

Sex ratio	Age in years		0-14		15-34		35-59		60+		All	
	city size	(in millions)	<.25	.25+	<.25	.25+	<.25	.25+	<.25	.25+	<.25	.25+
<700			—	—	14	3	22	15	4	1	8	3
700-799			—	—	14	12	19	14	8	8	12	10
800-899			18	9	20	14	30	5	3	6	31	14
900+			60	26	30	6	7	1	63	20	27	8
TOTAL			78	35	78	35	78	35	78	35	78	35

Table 75: Inter-city variation in sex ratio of individual age-groups

	Age in years			
	0-14	15-34	35-59	60+
Sex ratio : Range				
<700	—	17	37	5
700-799	—	27	33	16
800-899	27	35	34	9
900+	86	34	9	83
Mean	930	822	734	988
Minimum	827	386	303	642
Maximum	1034	1116	987	1435
Range	207	730	684	793
Mean Deviation	33.6	105.8	109.3	132.5
Standard Deviation	41.4	136.2	138.2	170.0
Coefficient of variation	4.5	16.6	18.8	17.2

cities for the remaining two age-groups in the highest interval is much smaller; in respect of adults we have only 9 cities with ratios of 900 or more, as against 37 others with ratios below 700.

With regard to the amount of inter-city variation, it is clear that it is the least in respect of the children's group and the most in the case of adults. It is notable, however, that the difference in the amount of variation is indicated to be quite nominal for the three older age-groups, namely, of youth, adults and old persons. The range of variation is the most extensive for the group of old persons; here the smallest ratio is 642 for Moradabad and the highest, 1435 for Jamnagar. Among the 83 cities with ratios of 900 or more, we have 58 cities with ratios of 1000 or more; the excess of females so indicated is more than 100 per thousand for 27 of these cities, among whom it measures more than 200 for 11 cities. At the other end, the range is the smallest for the children's group, extending from 827 for Gauhati to 1034

for Bhatpara. It is notable, however, that we have only 3 cities among the 86 in the 900+ range of the ratio, apart from Bhatpara, for which the ratio is 1000 or more; the ratio among them is 1000 for Guntur, 1004 for Eluru and 1021 for Rajahmundry.

For the youth, the range of variation in the ratio extends from 386 for Gauhati to 1116 for Kolar Gold Fields; here we have, apart from Kolar Gold Fields, 11 cities with ratios in excess of 1000, while at the other end ratios are smaller than 500 for the three cities, including Gauhati, Baly and the Durgtown group. For the remaining group of adults, the range extends from 303 for Bhatpara to 987 for Mangalore. None of the 113 cities shows any excess of females in respect of this age-group. We have, however, as many as 10 cities, including Bhatpara, in whose case the ratio for the adults' group is less than 500.

We may finally consider the relationship of age-specific ratios noted above to the ratio for the total population. For this purpose we express the age-specific sex ratios in terms of the percentages of the ratio for the total population and indicate percentage deviation as follows :

Table 76: Cities distributed according to percentage deviation of sex ratio of an age-group from the ratio of the total population

% Deviation	Age in years			
	0-14	15-34	35-59	60+
+ 50—	5	—	—	6
25-50	6	—	—	28
10-25	32	1	—	43
5-10	29	8	—	12
<5	30	29	1	6
— <5	10	32	12	4
5-10	1	31	28	6
10-25	—	12	58	8
25-50	—	—	14	—
50+	—	—	—	—
Total	113	113	113	113

It is striking that the group of adults exhibits almost universally a negative deviation which, at the highest, amounts to 48.2 per cent for Bhatpara. We have, besides Bhatpara, some 13 cities in whose case the deviation exceeds 25 per cent. At the other end, we have a solitary exception of Mangalore, showing positive deviation amounting, however, only to 0.5 per cent. The distribution in respect of youth is also not very extensive. The deviations are within the range of ± 25 per cent. Cities with negative deviations preponderate; for 12 among them the deviation exceeds 10 per cent, while in the smaller sub-group, with positive deviation, we have only one city for which it is so excessive. The patterns of distribution for the remaining two groups indicate common preponderance of cities recording positive deviation; the preponderance being somewhat less in degree for the group of persons in old age. It will be seen, however, that the proportion of cities with positive deviation exceeding 25 per cent is comparatively much more substantial for this group. The deviation in respect of the old-age group is the highest at 91.6 per cent for the Durg town group and in respect of the Children's group at 76.8 per cent for Bhatpara.

Migration

For an idea of the extent of migration, we will consider the distribution of population according to the place of birth, referring to persons born in the place of enumeration as residents and those born outside the place of enumeration, as migrants. On the basis of the aggregate data now available in the publications of the 1961 Census, it would appear that in the total population of the country, 67 per cent were reported to have been born in the place of enumeration and 33 per cent, in places other than the one of enumeration. It may be added that the latter 33 per cent were made of 21 per cent representing persons born in the same district as of the place of enumeration; nearly 7 per cent comprised persons born in other districts of the same State; over 3 per cent, persons born in other states of India; and over 2 per cent, persons born outside India.

The proportion of residents was the highest at 69.6 per cent for the aggregate rural population as against the corresponding 55.2 per cent for the total urban population. Within the latter, the resident proportion amounted to 46.7 per cent for the aggre-

gate population of 109 places which were individually classified as cities.* Alternatively, the proportion of migrants in the population varied from 30.4 per cent for the rural, 44.8 per cent for the urban and 53.3 per cent for the city population.

On the basis of the data for these 109 cities, we will first take up the proportion of migrants and then compare sex ratios of resident and migrant populations for an idea of sex selectivity amongst the migrants. The proportion of migrants varies amongst these cities from 6.7 per cent at the minimum for Srinagar to as high as 84.6 per cent for the Durg town group. Notable among the cities with low proportions are Aligarh with 16.4 per cent in the second place of the order of importance, Moradabad with 23.9 per cent and Bikaner with 24.1 per cent. The bulk of the cities are concentrated in the range extending from 25 to 50 per cent. There are, however, 32 cities in all, recording migrant proportion of more than 50 per cent. Among them we have, apart from the Durg town group, New Delhi with 76.1 per cent migrants, Ulhasnagar with 71.7 per cent and Baly with 70.2 per cent. The mean proportion (unweighted) for the entire group is 44 per cent, with a mean deviation of 10.3 points and standard deviation of 13.1 points, and the coefficient of variation of 29.8 per cent. The small size of the coefficient of variation is indicative of the fact that variation in migration content of the population is much smaller than the inter-city variation in the size of total population, for which the coefficient was, as noted earlier, 161 per cent. For ascertaining whether the migration content was related to the size of total population, correlation exercise was attempted for entire group of 109 cities but the value of the coefficient so obtained is not indicative of any correlation. Confining computation to 33 largest cities among them, covering all cities with a population of 2.5 lakhs or more, yielded, however, a coefficient of correlation of $+0.45$. This clearly indicates that for the group of larger cities, the proportion of migrants tends to increase with the increase in the size of total population.

It may be interesting further to refer to the limited data for individual cities, which permits classification of the migrants

*Data on migration are not available for the set of 113 cities considered earlier, which included a large number of town groups. Migration data for cities are given for 109 places, which too include some of the town groups covered by the above set.

into two broad categories of those who came from rural places and those who came from other towns and cities. It is sufficient in this connection to direct attention to the proportion constituted by persons born in rural areas in the total number of migrants for individual cities. According to this proportion the cities are distributed as follows :

Table 77: Distribution of cities according to proportion of the rural in total migrants

Proportion (%)	No. of cities
<50	6
50-60	41
60-70	32
70-80	24
80+	6
TOTAL	109

The range of variation in this proportion extends from around 40 per cent, reported in the case of Ulhasnagar, Moradabad and Bhopal, to around 83 per cent recorded by Gaya, Guntur and Darbhanga. It is clear that for bulk of the cities proportion exceeds a half of the migrant population. It may be remembered in this connection that the rural sector from which these migrants are drawn is several times larger in size as compared to its urban counterpart.

Turning to the comparison of sex ratio as between the resident and migrant population, we may first get a general idea of the comparative position in respect of the total national population and its rural and urban components. These sex ratios for the different categories of population obtained by classifying the population on the basis of the place of birth data are given in the following table together with the percentage share of each category in the total national population.

Directing attention to the distribution of the overall aggregate population, the sex ratio of the 67 per cent of them, classified as

Table 78: Sex ratios of the different categories of rural and urban population, classified by place of birth, 1961

Place of birth	R/U	Place of enumeration					
		% distribution of population			Sex ratios		
		All	Rural	Urban	All	Rural	Urban
India		100.00	82.01	17.99	941	963	845
Born in India	R	84.14	79.65	4.49	952	957	851
	U	13.49	1.10	12.39	887	1555	845
	T	97.84	80.91	16.93	943	964	847
Born outside India	T	2.16	1.10	1.06	857	896	817
Born in India in the place of enumeration	R	57.08	57.08	—	615	615	—
	U	9.92	—	9.92	810	—	810
	T	67.00	57.08	9.92	641	615	810
Born in the rest of the district	R	19.53	17.66	1.87	3208	3660	1198
	U	1.23	0.60	0.63	1482	1783	1248
	T*	20.93	18.40	2.53	3016	3524	1209
Born in other districts of the State	R	5.20	3.70	1.50	1742	2474	804
	U	1.36	0.34	1.02	1144	1456	1055
	T*	6.57	4.05	2.52	1593	2356	897
Born in the rest of India	R	2.33	1.22	1.11	876	1426	504
	U	0.97	0.15	0.82	826	1058	790
	T*	3.34	1.38	1.96	862	1379	617
Born in India outside the place of enumeration	R	27.06	22.57	4.49	2479	3215	851
	U	3.57	1.10	2.47	1143	1555	1000
	T*	30.84	23.83	7.01	2233	3072	901
ALL MIGRANTS		33.00	24.93	8.07	2084	2875	890

* Includes migrants which are not classifiable by rural-urban residence.

residents, comes to 641 only, while for the remaining 33 per cent comprising all persons born outside the place of enumeration the ratio is as high as 2084. This is indicative of a very high degree of female selectivity, the bulk of which is presumably accounted for by female migration incidental to marriage. This is clear, when we find that the sex ratio of migrants coming from the same district as of the place of enumeration is as high as 3016 and the sex ratio of migrants from other districts of the same state is 1593, while migrants coming from within the country but outside the state record a ratio of only 862. For the fraction of the migrant population born outside India it is lower still at 857.

It is also significant that similar decomposition for the rural population, which accounts for over 82 per cent of the national population, indicates that the rural sex ratios are higher all along the line, except for the resident population. The sex ratio of the resident population in rural areas is 615, while for the total migrant group for those areas it comes to 2875, the highest ratio among them being recorded at 3524 by the sub-group which is born outside the place but within the district of enumeration.

The ratio of resident population in the urban areas is higher at 810, showing a difference of 169 points as compared to the corresponding group in the national population and of 195 points as compared to the corresponding group within the rural population. The ratio of all migrants in the urban population is 890 but within this group those born in the district of enumeration had a ratio of 1209, those born in other districts of state, of 897 and those born in the rest of India, of 617.

It is also notable that the sex ratio amongst the migrants in the urban areas differs considerably, between those who were born in rural areas and those born in other urban areas. The sex ratio for the former group of rural to urban immigrants is 851, while the one for the latter group comprising those born in other urban areas is 1000. Within the migrant group the differential at the greatest is 286 points for the smallest sub-group comprising persons who were born outside the state of enumeration, the ratio for those of them born in urban areas being 504 only, as against 790 for those born in rural areas. The corresponding difference for the sub-group born within the state but in other districts, is 251 points from 804 to 1055, while for the remaining group of

those born within the district of enumeration the differential is only 50 points from 1198 to 1248.

As for the city population, the sex ratio of the aggregate population of the 109 individual cities, considered earlier, comes to 797 only. For the sub-group of residents, accounting for 55 per cent of this aggregate, the sex ratio is 855 and for the other sub-group, comprising migrants, it comes to 735 only. It will be seen that the resident sex ratio for the city population is higher, and the migrant sex ratio is substantially lower as compared to the corresponding ratios for the total urban population. This indicates a considerable degree of male selectivity displayed by migration into the cities.

We may pursue this matter further in order to note the inter-city differences in the relationship between the resident and migrant sex ratios. Both these ratios taken separately exhibit considerable variation from city to city. This may be indicated by distributing the cities according to each of the two ratios as follows :

Table 79: Distribution of cities according to sex ratio of resident and migrant population

Migrant S.R.	Resident S.R.				
	<700	700-799	800-899	900+	All
<700	2	3	5	5	16
700-799	—	5	13	—	18
800-899	1	3	11	8	23
900+	4	15	22	11	52
ALL	7	27	51	24	109

In the above cross-tabulation, 29 cities are placed in the same class according to the two ratios. Evidently the differential between the two ratios for these cities is comparatively small. For the rest, it is notable that the resident ratio is lower than the migrant ratio for 45 cities and higher, for the remaining 35 cities.

We may further indicate the difference in the amount of inter-

city variation as between the resident and migrant sex ratios. The coefficients of variation computed for this purpose are given below :

Table 80: Inter-city variation in sex ratios of total, resident and migrant population

	Total	Resident	Migrant
Mean	797	855	735
Minimum	497	640	276
Maximum	1004	1034	2194
Range	507	394	1918
Mean deviation	95	67	219
Standard deviation	117	86	290
Coefficient of variation	12	10	39

It will be seen that the range of variation is over twice as large for the migrant as for the resident population. The differences in the values of mean and standard deviation are even higher; and the coefficient of variation is nearly four times for the migrant as compared to resident population. The amount of variation for the migrant sex ratio is thus significantly large. It is larger as compared also to the inter-city variation in the proportion constituted by the migrant in the total population. However, it is interesting to note that the variation of migrant sex ratio is again much smaller than the inter-city variation in the size of population. We have further tried to see if the two types of variation in the migrant sex ratio and the size of population are correlated. Here again, the computation of coefficient of correlation for the entire group of 109 cities is not indicative of any significant relationship but when the computation is confined to the 33 largest cities, with a population of 2.5 lakhs or more each, we get a coefficient of correlation of —.50. Recalling that significant degree of correlation also obtained for this sub-group of cities between the size of city and its migrant proportion, it can be said that among the large cities the migrant proportion is positively, and its sex ratio negatively cor-

related to the size of city. Alternatively, larger the city, the larger is the proportion of migrants in its total population and the smaller is the sex ratio of its migrant group. This is indicative also of a significant degree of inverse correlation between the migrant proportion and the migrant sex ratio; the value of the coefficient here comes to -0.73 for this sub-group of 33 cities.

Additionally, we may compare the actual levels of the resident and migrant sex ratios. For this purpose we reduce the migrant ratio from the resident ratio and distribute the cities according to this difference as shown below:

Table 81: Distribution of cities according to the difference between the resident and migrant population sex ratios (resident-migrant).

Difference (No. of points)	Large cities > 25m+	Small cities < 25m	All cities
300+	2	6	8
200-300	1	3	4
100-200	3	6	9
50-100	9	7	16
<50	4	4	8
<50	5	7	12
50-100	4	8	12
100-200	3	10	13
200-300	2	11	13
300+	—	14	14
TOTAL	33	76	109

It will be seen that for as many as 45 cities, the migrant sex ratio is lower than the resident sex ratio. 19 of these are large cities. A perusal further of the data on size and comparative migrant sex ratios indicates that 9 of these 19 are placed at the top of the order of importance arranging the cities according to the size of the population. Among them we have the two largest cities

of India, Bombay and Calcutta. For Bombay, with a proportion of 64.2 per cent migrants in its population, the differential measures 357 points from the migrant sex ratio at 552 and the resident ratio at 909. For Calcutta, the difference is 402 points from 446 to 848, its migrant proportion being 52.7 per cent. At the other end, notable excesses of the migrant sex ratio are recorded, among the 14 such cities, by Srinagar and Agra. For the former, the difference is 294 from 1142 to 848 but it is significant that its migrant proportion is only 6.7 per cent. For Agra, the differential measures 205 from 966 to 761 and its migrant proportion is only 32.7 per cent.

Among the group of 76 smaller cities, there is a clear preponderance of cities, for whom the migrant ratio is higher. We have 50 cities with such a negative differential, for 14 of whom the differential exceeds 300 points. The highest differential among them measures as much as 1510 points for Aligarh, from the migrant ratio of 2194 to the resident ratio of 684; but here again the migrant proportion is only 16.4 per cent. The next in order of importance is the case of Mirzapur with a difference of 841 points, the sex ratio of its 26.9 per cent migrants being 1567 as against the resident ratio of 726. Notable large differentials among the remaining 12 such cities are recorded for Eluru, with migrant proportion of 47.1 per cent, at 669; Warrangal, with 33.9 per cent migrants, at 563; Saharanpur, with 38.3 per cent migrants, at 417 and Moradabad, with 23.9 per cent migrants, at 404 points. At the other end of the order, we have six cities with substantial excesses of the resident over the migrant sex ratio. The largest differential of 758 is recorded by Graden Reach with 39.1 per cent migrants, from the migrant ratio of only 276 to the resident ratio of 1034. Garden Reach is followed by Bhatpara, Baranagar and Baly, with migrant proportions of 61.2 per cent, 56.9 per cent and 70.2 per cent and the differentials of 470, 443 and 402 points respectively.

Working Force

In this brief reference, we will direct our attention to the two most important aspects of the working force, namely, the proportion of workers in the population and their industry-wise distribution. The reference to the latter aspect is intended to give us an idea of the inter-city variation in the character of economic activity. Let us first consider the comparative over-all position in respect of the proportion of workers in the aggregate population

and its rural, urban and city components.

Table 82: Proportion of workers in the aggregate national, rural, urban and city population

	India	Rural	Urban	City
Per cent of workers in the total population	43.0	45.1	33.5	33.2
Per cent of workers in the male population	57.1	58.2	52.4	53.3
Per cent of workers in the female population	28.0	31.4	11.1	8.0
Per cent of females among all workers	31.5	34.2	15.2	10.7
Per cent of females in the total population	48.5	49.1	45.8	44.4

The rural participation rates for both the male and female populations are comparatively very high. The rural-urban differential is not, however, very large for the male population. Comparing the urban population with its city component, it will be seen that the city population records a somewhat higher rate for the male population but for the female population the rate is significantly lower. In any case, for the total population the participation rate for the city population is only slightly less than that of the total urban population. It will be seen that the sex differential in participation rates is very well reflected in the proportion of females in the working force. For the city population, this proportion is substantially lower than for the urban population and for the latter it is less than half the corresponding figure for the rural population. The differentials between the three categories of population in the female proportion of the working force are significantly larger than the corresponding differentials in the proportion of females in the total population, given in the last row of the above table.

Turning now to the individual cities, it is clear that the participation rates, as well as the female proportion in the working force, vary considerably from city to city. It is significant, however, that these variations do not appear to be related to the size of cities. The coefficients of correlation computed for relating sex specific participation rates to the size of the city are all valued below even 10 per cent level of significance. The female

proportion in the working force likewise does not appear to be related to the size of the city but it does show quite a degree of correlation with the sex ratio of the city, as indicated by the proportion of females in the total population. The value of the coefficient of correlation between the two proportions for the set of 113 cities comes to 0.55 and for its sub-group of 33 cities to 0.59.

In view of this relationship between the sex ratio and female participation rate, we may also give a cross-tabulation of cities according to the two variables :

Table 83: Distribution of cities according to female proportion (i) in total population and (ii) in the working force (females in thousand persons.)

Proportion of females in the population	Proportion of females in working force						All
	<50	50-100	100-150	150-200	200-250	250+	
<400	5	3	2	—	—	—	10
400-425	—	1	—	—	—	—	1
425-450	7	13	7	1	—	—	28
450-475	7	10	14	7	3	3	44
475-500	—	—	6	12	6	4	28
500+	—	—	—	—	1	1	2
ALL	19	27	29	20	10	8	113

It will be seen that the modal group, according to sex ratio, in the range 450-475 shows a wide spread of the distribution according to other variable, namely, the proportion of female in the working force. The two adjacent groups have the same number of cities but between them, there is a contrast in the distribution according to the female proportion in the working force. The group in the lower class interval exhibits evidently a higher concentration of cities in the lower ranges of the proportion of women in the working force as compared to the other group in the higher class interval.

We have as many as 19 cities with the female proportion in

the working force amounting to less than 5 per cent; for 7 of them, the sex ratio cannot be considered as low, since the proportion of females in their population exceeds 45 per cent. The lowest proportion of females in the working force amounting to only 3 per cent is reported for Howrah, with a population of over 5 lakhs and sex ratio of 630 and a working force participation rate of 37 per cent. Notable among the other cities, with low female content in the working force are Kamarhati with a sex ratio of 648, Baly with a ratio of 553, Asansol with a ratio of 660, Agra with a ratio of 824 and Moradabad with a ratio of 845. At the other end, the highest proportion of females in the working force comes to 32.6 per cent for Malegaon, with a population of over 1,23,000, a sex ratio of 893 and a participation rate of 40.9 per cent. Seven other cities recording this proportion to be more than 25 per cent were Sagar, Warrangal, Kurnool, Salem, Guntur, Mangalore and Palayamcottai, whose sex ratios were 850, 929, 938, 957, 979, 982 and 1016 respectively.

For an idea of inter-city variation displayed by the different variables noted above, we may further present some measures of dispersion for each of these variables.

Table 81: Inter-city variation in working force participation rates

	Participation rate			Proportion of females in working force
	Population	Males	Female	
Mean	319	509	86	107
Minimum	259	436	22	30
Maximum	508	717	223	326
Range	249	281	201	296
Mean Deviation	31	33	38	58
Standard deviation	41	44	48	74
Coefficient of variation%	13	9	56	69

The amount of inter-city variation shown by the female participation rate is somewhat smaller than the one shown by the proportion of females in the working force. But all the same, it is

as high as nearly 8 times the corresponding value for the males. In the result, even though females constitute by and large only a fraction of the working force, the coefficient of variation for the total, or the combined male-female rate, is significantly higher than the corresponding value for the male proportion.

Finally, we may indicate relationship between the level of sex ratio and the working force participation rate for the total population as follows :

Table 85 : Distribution of cities according to sex ratio and working force participation rate

Working force participation rate (per 1000)	Level of sex ratio				
	900+	800-899	700-799	<700	All
<250	2	5	1	—	8
250-300	10	18	5	—	33
300-350	16	20	11	1	48
350-400	7	2	4	4	17
400+	—	1	—	6	7
TOTAL	35	46	21	11	113

The table gives an impression of an increase in participation rate as we move down the sex ratio ranges. All the 11 cities with very low sex ratios, in the column for <700 in the above table, record a participation rate of 300 or more. On the other hand, among the 35 cities with sex ratio of 900 or more, we have as many as 12 with participation rates below 300. The proportion of cities with such low participation rates appears to decrease as we move further down the other columns of the sex ratio range. Directing attention to the two extremes of the range of variation in sex ratio, it may be noted that for the five cities with the highest sex ratios, the participation rate ranges from 28 per cent to 37 per cent, while at the other end, for the 5 cities with lowest sex ratios, it ranges from 38 per cent to as high as 51 per cent. Alternatively, the sex ratios for the 5 cities with highest participation

rates vary from 497 to 635, apart from exceptionally high ratio of 893 recorded among them by Malegaon, while the 5 cities at the other end with lowest participation rates have sex ratios varying from 847 to 927.

With regard to the industry distribution of workers, we may again consider the position of individual cities against the background of the comparative patterns of distribution for the different categories of the aggregate population. The percentage distribution of workers is accordingly given below for the total population and its rural, urban and city components.

Table 86: Percentage distribution of workers according to industry

		India	Rural	Urban	City
I	As cultivator	52.8	60.3	6.5	1.6
II	As agricultural labour	16.7	18.9	3.5	0.8
	Agriculture	69.5	79.2	10.0	2.4
III	In mining, quarrying etc.	2.8	2.8	2.5	1.5
IV	At household industry	6.4	6.1	7.9	5.1
V	In manufacturing other than household industry	4.2	1.5	21.0	27.4
VI	In construction	1.1	0.6	3.6	3.6
	Mining, Mfg., and Construction	14.5	11.0	35.0	37.6
VII	In trade and commerce	4.0	2.1	16.3	17.4
VIII	In transport, storage and communications	1.6	0.6	8.1	9.9
	Trade, Transport, etc.	5.6	2.7	24.4	27.3
IX	In other services	10.4	7.1	30.6	32.7

As could be expected, the major difference between the rural and urban patterns relates to the position of agriculture. Even so, it might appear surprising that one out of every ten workers in the urban sector is employed in agriculture. For the rest, apart from mining, the urban sector records a higher proportion for all the different categories of economic activity; the differen-

tial being comparatively much larger for manufacturing other than household industry; trade and commerce; transport, storage and communications; other services; and construction. The differential for the remaining category of household industry is comparatively small.

Comparing the city with the urban pattern, it will be seen that the proportions in the city pattern are relatively low for agriculture, mining and household industry. The construction category claims the same proportion in the two patterns. The remaining categories record correspondingly higher proportions, the difference in terms of percentage points being the highest among them for manufacturing other than household industry.

With regard to comparative position of individual cities, we will first briefly refer to agriculture which accounts in the aggregate working force in the cities for less than 3 per cent of the total. This proportion varies from .01 per cent recorded for Calcutta to a rather exceptionally high figure of 30.3 per cent for the Kolar Gold Fields. Apart from this, the proportion is higher than 10 per cent in respect of 5 cities, namely, the Sangli town group (19.9 per cent), the Kurichi town group (13.6 per cent), Amravati (10.5 per cent), Kolhapur (10.1 per cent) and Bandar (10.1 per cent). On the other hand, the proportion is less than 1 per cent in the case of as many as 23 cities and less than 5 per cent for 84 cities in all.

Leaving aside agriculture, we may concentrate on the remaining bulk of the working force for having an idea of the character of economic activity in individual cities. For this purpose we distribute the non-agricultural workers between three broad sectors viz., namely, (i) manufacturing, including mining quarrying etc., household industry, manufacturing other than household industry, and construction; (ii) trade and transport, including the two classes of trade and commerce, and transport, storage and communication; and (iii) all other services, represented by Class IX in the above table.

Our attempt at correlating each of the above proportion of the non-agricultural labour force to either the size or the sex ratio of the city population has not yielded statistically significant values of coefficients of correlation. We may, however, proceed to record the amount of inter-city variation displayed by each of these three proportions.

Table 87: Inter-city variation in proportion of non-agricultural working force in different sectors

	Manufacturing	Trade and transport	Other services
Mean	38	27	35
Minimum	10	12	12
Maximum	76	54	73
Range	66	42	61
Mean Deviation	10.1	5.0	8.2
Standard deviation	12.9	6.7	10.4
Coefficient of variation	33.9	24.8	29.7

All the different measures of dispersion tend to indicate that the amount of variation is substantially larger for the proportion representing the service sector than for the one representing trade and transport. For the proportion in the manufacturing sector, the variance is greater still. The relative importance of the manufacturing sector, as indicated by the mean values, is only slightly greater than the service sector. In any case, the manufacturing sector claims particular attention in view of the comparatively greater variation displayed by it. The range of variation in the manufacturing proportion extends from only 10 per cent for the Shillong town group to as high as 76 per cent for Malegaon. At the lower extreme of this range, we have 12 other cities, among whom the proportion is 17 per cent for Gauhati, 18 per cent for Jammu, 19 per cent for Dehradun, 21 per cent for Ahmednagar, 22 per cent for Muzaffarpur, Gorakhpur, Burdwan, Shahjehanpur and Trivandrum; and 23 per cent for Mathura, Vishakhapatnam and the Cochin-Ernakulam town group. At the other end, the proportion exceeds 60 per cent for 8 cities, apart from Malegaon; among them it is 72 per cent for Bhatpara, 68 per cent for Baly, 66 per cent for Kamarhati, Sholapur and Kolar Gold Fields, 65 per cent for the Durg and Kurichi town groups and 63 per cent for Jamshedpur. The case of the Kolar Gold Fields is particularly notable as having recorded a high

proportion of manufacturing, as well as of agricultural workers, in the working force; the proportion of manufacturing workers in the total number of workers here comes to nearly 47 per cent.

With respect to the manufacturing sector, it may be noted that this category comprises four different classes of workers including mining, household industry and construction. For a better appreciation of the relative importance of the more modern types of industrial activity, we may refer to the proportion constituted by manufacturing other than household industry in the total workers in this sector.

Table 88: Distribution of cities according to the proportion of manufacturing other than household industry, in the total number of workers in the secondary sector

Per cent	Large cities 2.5 lakhs or more	Other cities Less than 2.5 lakhs	All cities
<30	1	4	5
30-40	—	5	5
40-50	1	8	9
50-60	5	17	22
60-70	11	16	27
70-80	9	16	25
80-90	7	6	13
90+	1	6	7
ALL	35	78	113

It will be seen that the range of variation in the proportion is extremely wide; it extends from an exceptionally low value of only 5.9 per cent for the mining city of Kolar Gold Fields to as high as 97.6 per cent for the industrial community of Bhatpara. There is, however, a fair degree of concentration in the middle intervals of the range extending from 50 per cent to 80 per cent; the combined strength of these three intervals is 74 out of a total of 113 cities. In degree, this concentration is greater for the group of

35 large cities as compared to the one of the 78 remaining cities. It is also notable that the proportion of cities in the three lower intervals is comparatively much smaller for the group of large cities. We may further identify some of the cities arranged at the two extremes of the range of variation. From among the group of 78 other cities, we have, apart from Baly, Bhatpara, Kamarhati, Asansol, Baranagar and Kharagpur, each recording a proportion exceeding 90 per cent. At the other end, Kolar Gold Fields is preceded by the Sagar town group with a proportion of 18 per cent, then by the Dhanbad-Jharia, town group and Bhagalpur, both with a proportion of around 29 per cent. The range of variation in the proportion extends for the group of large cities from 26 per cent for Varanasi to 93 per cent for Howrah. Additionally, we may note that 7 of these cities had a population of more than a million each; among them, the proportion ranges from 64 per cent at the lowest for Hyderabad to 89 per cent at the highest for Ahmedabad. For the largest city, namely, Greater Bombay, the proportion comes to 88 per cent, for Calcutta to 86 per cent, for Delhi and Madras to 75 per cent and for Bangalore to 73 per cent.

It is interesting finally to refer to a functional classification of cities†, which is based on the distribution of non-agricultural workers according to the above categorisation of economic activity. Taking the broad functional classes of cities from this classification, Table 89 (page 186) gives a distribution of the 113 cities, together with the mean sex ratio of cities in each class as well as the distribution of the cities according to the level of sex ratio of each city.

It will be seen that 57 of the 113 cities are classified as industrial, 47 as service and 9 as trading and transport cities. Within the largest group of industrial cities, manufacturing accounts for the main bulk but we have 2 mining cities, Kolar Gold Fields and the town group of Dhanbad-Jharia, and 6 artisan cities, whose economic activity specialises in the household industry—namely, Bhagalpur, Nagercoil, Palayamcottai, the Sagar town group, Varanasi and Salem. In the smallest group of 9 cities, we have 3 specialising in transport—namely, Gorakhpur, Kharagpur and Ajmer, all important railway centres. Among the remaining 6

†See Asok Mitra, "A Functional Classification of India's Towns" in Bose, Ashish (Ed.) *Patterns of Population Change in India, 1951-61*, 1967, pp. 261-86.

Table 89: Functional classification of cities and their distribution according to sex ratio

Function	No. of cities	% of population	Sex ratio aggregate population	No. of cities in sex ratio range			
				<700	700-800	800-900	900+
1. Service	47	37.5	845	2	12	20	13
2. Industry	57	50.8	793	8	8	21	20
(i) Mining	2	0.9	766	1	—	—	1
(ii) Artisan	6	3.4	886	—	—	3	3
(iii) Manufacturing	43	46.6	787	7	8	18	16
3. Trade and transport	9	11.7	690	1	1	4	2
(i) Trade	6	10.2	672	1	—	3	2
(ii) Transport railway	3	1.5	823	—	1	2	—
All	113	100.0	799	11	21	46	35

trading cities, we have Calcutta, Vijayawada, Rajahmundry, Raipur, Barcilly and Saharanpur.

The percentage distribution of the total population of these 113 cities according to the functional classification indicates that industry as a whole accounts for 50.8 per cent, of which 46.5 per cent is claimed by manufacturing activity proper. Service accounts for 37.5 per cent, while the remaining 11.7 per cent goes to the Trading and Transport, the latter transport category accounting for only 1.5 per cent of the total.

Irrespective of these differences in relative size of the different functional classes, we may attempt a comparison of their sex ratio levels. The lowest ratio of 672 is recorded for the aggregate population of trading cities. It may be noted, however, that only one of these 6 cities—namely, Calcutta, has a sex ratio of less than 700. It is evident that the ratio for the aggregate population of this functional class is brought down to such a low level by the sheer advantage of Calcutta in the size of population. The highest ratio, at the other end, is claimed by the artisan class of cities; for 3 of them, the ratio exceeds 900. The major difference, on the whole, is between the 49 manufacturing cities with a ratio of 787 for the aggregate population, and the 47 service cities with a corresponding ratio of 845. Two of the cities of the latter class are placed in the lowest interval for the sex ratio; Muzaffarpur, here records a ratio of 695 and Gauhati of 497. The lowest ratio among the 7 manufacturing cities in this class is 553 for Baly, which is followed by Bhatpara with 585 in the next place and then by the Durg town group with a ratio of 594.

Zonal Distribution

We had the occasion earlier to refer briefly to the zonal distribution of aggregate city population. This, we will follow up here with a reference to inter-city variations in size and sex ratio of population for individual zones. For size, Table 90 (page 189) gives relevant summary indices to facilitate comparison between different zones.

It will be seen that the Southern zone has the largest number of cities and also as many as 3 of the 7 million-plus cities. But the average size of cities for the Southern zone is smaller as compared, particularly, to the Western zone, which claims two of the remaining million-plus cities, including the largest of Indian cities,

namely, Greater Bombay, and so records the mean size for its 19 cities at a slightly more than half a million. It is interesting to note also that the Southern zone does not show any great variation as between its shares of the aggregate population of different categories; it accounts for 25.2 per cent of India's population and 25 per cent also of its city population. Similar impression is obtained by a perusal of the figures for the Northern zone, which evidently is the least urbanised of the five zones; its share in the urban as well as in the city population is, however, greater than its corresponding share in the total population. The comparative position may be further seen by directing attention to the percentage share claimed by the cities in the total urban population in the different zones; here the range extends from 41.3 per cent for the Southern zone to as high as 58 per cent for the Western zone. The corresponding proportion for the country as a whole is exceeded by the Central and the Northern zones but it exceeds that of the Eastern zone.

For a comparative idea of the amount of inter-city variation in size, reference may be made to the range between the smallest and the largest of the cities in each zone. This range is the largest for the Western zone, evidently on account of the inclusion therein of Greater Bombay. The range is the smallest for the Central zone, which did not possess in 1961 any million-plus city. If we leave out the 7 million-plus cities, the range narrows down considerably for each of the other zones; for the Western zone it comes to nearly 6.3 lakhs; for the Eastern, to 4.2 lakhs; for the Southern, to 3.2 lakhs; and for the Northern, to 3.0 lakhs. The coefficient of variation indicates the amount of inter-city variation to be the highest for the Eastern zone and the lowest for the Central zone. It is higher, than for the country as a whole, for the Western zone too, while it is somewhat lower for Northern zone and substantially lower for the Southern zone. On the whole, the higher amount of variance can be attributed to the presence of some of the largest cities in the Eastern and Western zones but this only highlights their comparative difference from the Southern zone, which in spite of having 3 million-plus cities, records a comparatively smaller amount of variance.

We may now present the data regarding sex ratio of city population in a similar manner in order to highlight the zonal differences.

Taking first the series of frequency distributions, the contrast

Table 90: Inter-zone differences in the size of city population

	Northern	Central	Eastern	Western	Southern	All India
Population (—000's)	48,033	106,119	113,593	60,245	110,554	439,235
Per cent Rural	78.4	86.7	87.1	72.6	79.0	82.0
Per cent Urban	21.13	6.3	12.9	27.4	21.0	18.0
Per cent City	10.9	6.6	6.0	15.9	8.7	8.7
City as % of Urban	50.2	19.4	46.8	58.0	41.3	48.4
Percentage of population in each zone —Total	10.9	24.1	25.9	13.7	25.2	100.0
Rural	10.4	25.5	27.5	12.1	24.3	100.0
Urban	13.2	17.9	18.6	20.9	29.4	100.0
City	13.7	18.2	17.0	25.1	25.0	100.0
Size of Cities: frequency distribution (in lakhs)	1	—	1	2	3	7
5-10	—	3	1	2	—	6
2-2.5	4	7	3	3	5	22
<2.5	9	15	18	12	24	78
All	14	25	23	19	32	113
Mean size (—000's)	372	279	297	503	299	338
Range (—000's)	2258	871	2826	4013	1628	4052
Coefficient of variation %	150	72	192	179	123	161

between the Eastern and the Southern zones is particularly striking. All the 32 cities of the Southern zone have a sex ratio higher than 800 and for as many as 29 of them it exceeds 900. It is in the Southern zone that we have the two cities recording excess of females in the population, namely, Palayamcottai and Eluru. The Eastern zone, in contrast, claims the preponderant number of cities with sex ratio below 700, the lowest of which measured only 497 for Gauhati. It is also notable that none of the 23 cities in the Eastern zone is placed in the highest sex ratio interval; the highest ratio among them comes to 875 for the town group of Monghyr-Jamalpur. Apart from this, it will be seen that all the cities of the Northern zone are concentrated in the interval between 700 and 900; the smallest ratio here is recorded by the Ambala town group at 772 and the highest by Ajmer, at 887.

A perusal of the series of sex-ratios for the different categories of aggregate population serves to indicate that the Southern zone consistently records the highest sex ratio; the excess registered by the zone over the corresponding ratio for the all-India population differs rather sharply between the rural and urban population; the rural ratio for the zone exceeds the corresponding all-India ratio by only 32 points but the zonal urban and city ratios so exceed by 107 and 129 points respectively.

The lowest ratio is claimed by the Northern zone in respect of the total population as well as for its rural component. But for the urban and its city component, the lowest values are recorded by the Eastern zone. The deviation of the lowest ratio from the all-India ratio comes to 61 points in respect of the total population and 68 points for the rural population; for the urban population it amounts to 107 points and for the city population to 130 points. It will be seen that the deviation of the zonal from the national ratio in respect of the city population is not significantly large for the Central and the Northern zones. It is somewhat larger for the Western zone and larger still for the remaining two zones. The ratio for the Eastern zone is smaller than the corresponding national value by 16 per cent, while that of the Southern zone is over 16 per cent larger. Comparison between the urban and city population sex ratios indicates that the city ratio is 5.4 per cent smaller than one for the urban population for the country as a whole. This difference again is the least for the Southern zone and the most for the Western zone, in whose case the city

Table 91 : Inter-zone differences in the sex ratio of city population

	Northern	Central	Eastern	Western	Southern	All-India
Sex ratio of						
Total population	880	922	944	938	926	911
Rural population	895	938	979	981	995	963
Urban population	828	826	738	831	952	815
City population	905	803	671	771	928	799
City Sex Ratio as % of Sex Ratio of						
Total population of India	91.5	87.1	71.1	82.2	94.1	84.9
Aggregate city population of India	100.8	100.5	84.0	96.5	116.1	100.0
Urban population in each zone	96.9	97.2	90.9	86.8	97.5	94.6
Sex Ratio of individual cities : Frequency distribution						
900 +	—	—	—	6	29	35
800-899	8	19	5	11	3	46
700-799	6	5	9	1	—	21
<700	—	1	9	1	—	11
All	14	25	23	19	32	113
Mean (unweighted)	825	816	723	863	949	844
Range	115	299	378	264	142	519
Coefficient of variation	5	7	14	71	38	12

ratio measures only 86.8 per cent of the urban ratio. This difference is significantly large also for the Eastern zone.

Finally, it will be seen that the inter-city variation of sex ratio is not significantly large for the Northern and Central zones. It is a little larger for the Eastern zone, which significantly records the most extensive range of variation among the zones. The largest amount of variation is recorded here by the Western zone, with a coefficient of variation valued at 71 per cent, and the range measuring 264 points. The variation is significantly large also for the Southern zone, irrespective of the fact that the most of its cities are concentrated in the highest sex ratio interval and that the range of variation is comparatively much less extensive.

CHAPTER EIGHT

SUMMARY AND CONCLUSIONS

The growth of India's population since 1921 has not only been continuous but had accelerated in the latest census decade, 1951-61. The population has all along been characterized by female deficiency; the sex ratio had decreased from 972 in 1901 to 945 in 1941 and further to 941 in 1961.

In the size of population, India ranks second, after China, among the countries of the world. The female deficiency in the population of both India and China presents a contrast to the opposite kind of sex disproportion exhibited by most other countries of the world. Among the 38 countries, each with a population of more than 10 million around 1961, for which sex breakdowns are available, India is placed, along with China and Pakistan, among the 13 countries showing female deficiency; in degree, the deficiency is somewhat smaller for India than for China and also for Pakistan.

Census zones

Within India, the growth of population was commonly shared by all the census zones. The decennial rates of growth, however, differed somewhat. Compared to 1921, the proportion of population in the northern, western and eastern zones was larger and in the remaining central and southern zones smaller in 1961. The central, eastern and the southern zones had each around a quarter of the total population, while the northern zone claimed 11 per cent and the western, 14 per cent of the total.

The eastern and southern zones exhibited a small excess of females in the population in 1901. There was a progressive reduction in the sex ratios of these zones during the period and in 1961 all the five zones recorded a female deficiency. The sex ratios ranged from only 880 in the northern to 985 in the southern zone.

States

Population growth has been shared since 1921 by all the fifteen states of India. The rate of increase did in each decade vary from

state to state. Between 1901 and 1961, the total population of India had increased by 86 per cent. The increase varied among the states from 52 per cent for U.P. to 220 per cent for Assam. These inter-state differentials in the rate of increase did not, however, cause any material change in the state-wise distribution of the total population. Eight states recorded small increases in their individual shares of the total population at the cost of the remaining seven. The increase at the maximum amounted to 1.2 points from 2.7 per cent in 1901 to 3.9 per cent in 1961 for Kerala, while the maximum decrease was 3.6 points from 20.4 per cent to 16.8 per cent for U.P.

Over the period, sex disproportion in population was reduced in the case of five states and had increased in the case of the remaining ten states. Among the former five, female excess was almost eliminated in Orissa and was replaced by a smaller excess of males in Madras and Bihar, while the continuing female deficiency was reduced in Punjab and Rajasthan. Among the states with increased sex disproportion, Kerala is the only state revealing an accentuation of female excess. Among the remaining states, female deficits had been accentuated to a nominal extent in J.K. and A.P. but substantially in W. Bengal and Assam.

In 1961, the population in thirteen states exhibited a deficiency of females; among them the sex ratio ranged from 864 for Punjab to 994 for Bihar. As compared to the sex ratio of the total population, the ratio for Kerala was higher by 8.6 per cent and lower for Punjab by 8.2 per cent. Besides Punjab, the ratio was smaller by more than 5 per cent for Assam, J-K and W. Bengal, while it was larger by more than 5 per cent, besides Kerala, for Orissa, Bihar and Madras.

Rural and Urban Populations

During the second half of the period, there was considerable accentuation of the process of urbanization. The urban proportion in the population of the country as a whole had moved up from 10.8 per cent in 1901 to only 12.0 per cent in 1931 and then to 18.0 per cent in 1961. If allowance is made for the 1961 changes in the definition of 'urban,' the proportion comes to 19.1 per cent.

The increase in the urban proportion was common to all States. Between 1901 and 1961, while the urban proportion recorded an increase of 8 points for the country as a whole, it had increased by

12.5 points in Madras, 12.3 points in W. Bengal and 11.6 points in Maharashtra but by only 1.2 points in Rajasthan. In 1961, the range of inter-state variation in urban proportion extended from only 6.3 per cent in Orissa, 6.7 per cent in Assam and 8.4 per cent in Bihar, 25.8 per cent in Gujarat, 26.7 per cent in Madras and 28.2 per cent in Maharashtra.

The deficiency of females has all along been greater in the urban as compared to the rural population. The difference between the rural and urban sex ratios had in fact increased from 69 points in 1901 to 134 points in 1941; thereafter, an increase in the urban ratio had narrowed it down to 105 in 1951 but it was enlarged again to 118 points in 1961.

With regard to the position of individual states, we have a few exceptional instances indicating the urban ratio to be greater. These relate, however, to earlier censuses. In 1901, for example, the urban ratio was greater than the rural by 49 points in Rajasthan, 16 points in A.P., 14 points in Gujarat and 5 points in Madras. By 1961, the position was reversed and the urban ratio was comparatively smaller in these as well as in all other states. The excess of the rural over the urban ratio then ranged among the states from only 29 points in A.P. to as many as 201 points in Bihar, 208 points in Orissa, 218 points in Assam and 242 points in W. Bengal.

Size Classes of Towns

Up to 1951 the growth of population was common to all the six size classes of towns into which the urban population is customarily distributed. Among them the rate of growth was by far the largest for the I size class, representing the cities. The aggregate urban population increased between 1901 and 1951 by 36.5 million from 25.9 million to 62.4 million; of this, 20.2 million were claimed by class I, 6.2 million by class II, 3.7 million by class III, 3.1 million by class IV, 2.9 million by class V and 0.4 million by class VI. Between 1951 and 1961, the aggregate urban population had increased by 16.5 million. This was the net result of increases experienced by the first four classes and the decreases recorded by the remaining two. The combined increase of the first four classes amounted to 20.3 million, of which 11.8 million was claimed by class I, while the decrease in classes V and VI was 3.8 million.

The relative importance of class I was thus greatly increased in the course of the period. The proportion of population living

in cities, i.e. in all places included in class I, had increased from 23 per cent of the total urban population in 1901 to 27 per cent in 1931 and thereafter to 48 per cent in 1961. Correspondingly, the relative importance of classes IV, V and VI was reduced; the proportion of population in class VI decreased between 1901 and 1961 from 6 per cent to only 1 per cent, in class V from 20 per cent to 7 per cent and in class IV from 22 per cent to 13 per cent.

For sex ratio, a general trend of decrease operated during the period, excepting the decade, 1941-51. Between 1901 and 1941, the decrease amounted to 68 points for class II, 67 points for class III, 64 points for class I, 44 points for class IV, 34 points for class V and 33 points for class VI. During 1941-51, the ratio had increased for each class, the amount of increase varying from 8 points for class VI to 68 points for class I. In the final decade, the increasing trend was carried forward for only class I; for the other classes the decrease had reasserted. Consequently, the ratio was higher in 1961 as compared to its level in 1901 for class I by 14 points; among the other classes it was lower by 77 points for class II, 55 points for class III, 53 points for class IV, 66 points for class V and 73 points for class VI.

For most of the states, the growth of urban population had involved considerable increase in the relative importance of class I. This class claimed the largest share in the total increase of urban population over the period in all the states, excepting Orissa and Assam. This proportion varied from only 17 per cent in Orissa and 25 per cent in Assam to 77 per cent in Maharashtra and 94 per cent in U.P. Further, it is notable that the change in the distribution of urban population according to the size of towns was generally in favour of the first three classes. The combined share of these classes, representing effective urban population, had increased over the period in all states, excepting J-K and Orissa, at the cost of the quasi-urban population represented by the remaining three classes. In 1961, the effective urban population accounted for as much as 91 per cent of the total urban population in W. Bengal, 84 per cent in Maharashtra, 83 per cent in U.P. and at the other end of the order, 64 per cent in Assam and only 54 per cent in Orissa.

To represent the net changes in sex ratio of the six urban classes over the period for the fifteen states we have 90 numbers, of which only 18 indicate an increase in the ratio. The more general trend of variation in the sex ratio was thus one of decline. This is true

even of class I; the sex ratio of this class was higher at the national level in 1961, as compared to 1901, by 14 points; but it was lower in the case of 11 of the 15 states, the amount of decrease being, at the highest, 253 points for Bihar.

Confining attention to the effective and quasi-urban components of the urban population, it is notable that between 1901 and 1941 both the components suffered a reduction of sex ratio at the national level, the amount of decrease in the ratio being much greater for the effective urban population. At the state level, the reduction was common to the two components in all states except Kerala and Assam. In the next decade, there was a common increase in the sex ratio of the two components at the national level and in 10 of the 15 states. Exceptional reductions in the ratio were recorded among the remaining 5 states by the effective urban population in Madras and by the quasi-urban population in U.P., Bihar, Orissa and Kerala. In the final decade, the direction of change in the sex ratio differed between the two components, the effective urban population registering at the national level a small increase and the quasi-urban population recording a substantial decrease. The same type of divergence in the direction of change between the two components was repeated only in two states, U.P. and Maharashtra. In Assam, the comparative position was the reverse, the effective urban population registering a decrease and the quasi-urban, an increase in the sex ratio. Eight of the remaining states showed a common decrease and the other four, a common increase.

Over the period as a whole, the sex ratio at the national level was reduced by 35 points for the effective and 55 points for the quasi-urban population. In 9 states, the reduction in the ratio was similarly common to the two components. In two other states, there was a common increase in the ratio. In the remaining states there was an improvement in the ratio for the effective urban population accompanied by a decrease in the ratio for the quasi-urban population.

Comparing the sex ratio levels for the two components from census to census, it is notable that the excess of ratio for quasi-urban over the one for effective urban population had increased at the national level from 98 points in 1901 to 140 points in 1941 and was reduced thereafter to 78 points in 1961. Over the period as a whole, this disparity was reduced in 11 states, the amount of reduction vary-

ing among them from only 5 points in Mysore to 157 points in W. Bengal.

Finally, for an indication of the inter-class variation in sex ratios displayed by different states in 1961, we may refer to the size of differential between the highest and the lowest of the six sex ratios for different size classes expressed as percentages of the ratio for the total urban population. This differential measured 14 points at the national level and varied among the states from only 3 points in J-K to 17 points in Gujarat, 22 points in Orissa, 23 points in Assam and Maharashtra and, 30 points for W. Bengal. In the exceptional case of U.P., the differential was as high as 40.5 points.

City Population

Considering the aggregate population of cities in the country as a whole, the period is divisible into two clear-cut phases of growth, namely, 1901-31 and 1931-61. The increase in the aggregate city population was only 53 per cent in the first phase but over 300 per cent in the second. It is also notable that the increase in the aggregate during the second phase had accrued more from the addition of new cities than from the expansion of the existing ones. The number of cities had increased from 26 in 1901 to 36 in 1931 and thereafter to 113 in 1961.

In 1901, there were no cities in the three states of Kerala, Orissa and Assam; Kerala reported city population for the first time in 1931; Orissa in 1951 and Assam in 1961. Apart from the 15 states, city population has been reported by all the censuses of the period in the case of only the Union Territory of Delhi.

The growth of city population over the period has been shared by all the states and it has operated continually from 1921 onwards. The rate of growth for the first phase varied from only 4 per cent for A.P. and Gujarat and 19 per cent for U.P. and Bihar to 108 per cent for Delhi, 184 per cent for M.P. and 235 per cent for Mysore. In the second, the rate had varied from 128 per cent for J-K and 196 per cent for M.P. to 427 per cent for Delhi, 442 per cent for Gujarat, 473 per cent for A.P. and 957 per cent for Bihar.

A comparison of state-wise distribution of the aggregate city population between 1901 and 1961 indicates that apart from the new claims of the three states of Assam, Kerala and Orissa, which had no cities in 1901, we have seven states—Bihar, M.P., Maharashtra, Mysore, Punjab, Rajasthan and Delhi—showing an

improvement in their shares at the cost of the remaining six states, namely, A.P., Gujarat, J-K, Madras, U.P. and W. Bengal. Among the former states, the improvement in the share amounted to 3.1 points in Mysore, 2.5 points in M.P. and 2.2 points in Bihar, while among the latter six, the reduction was as high as 7.1 points in U.P. and 4.8 points for W. Bengal.

In each state, the relative strength of city-dwellers within the population had increased over the period taken as a whole. Within the small Union Territory of Delhi, the proportion of city population in the total population moved up between 1901 and 1961 from 53 per cent to 89 per cent; in Maharashtra, from 6 per cent to 18 per cent; in W. Bengal, from 7 per cent to 14 per cent; and in Madras, from 4 per cent to 11 per cent. Concurrently, the relative importance of city population within the urban sector had increased in all the states except J-K. More striking improvements in the proportion of city population in the total urban population were from 0 to 39 per cent in Kerala, from 12 to 43 per cent in Bihar, 10 to 41 per cent in Mysore and 10 to 39 per cent in M.P.

In 1961, there was no urban population apart from the city population in the Union Territory of Delhi. The cities accounted for more than 60 per cent of the urban population in J-K and Maharashtra, more than 50 per cent in W. Bengal and U.P. and more than 40 per cent in Mysore, Madras, Gujarat and A.P. In contrast, this proportion was only 22 per cent in Assam and 13 per cent in Orissa.

About the sex composition of the city population in different states, all the censuses reported the deficiency of females to be entirely general. Of the 98 sex ratios computed for the state level city populations, we have only one indicating a small excess of females in the 1901 city population of Bihar. The smallest of the remaining ratio is 476 for the city population of W. Bengal in 1941.

With regard to variation in the sex ratio from census to census, the decrease in its level has been more frequent than the increase. The largest decrease was 164 points for the city population of Rajasthan in 1911-21 and the largest increase, 124 points for W. Bengal in 1941-51. There was not, in any decade, any correlation between the change in the ratio and the variation in the size of city population. Of the 75 instances of decennial increase in the size of city population, 38 were accompanied by an increase and 37, by a decrease in the ratio.

Taking the two phases of the period separately, it is observed that the first phase, characterized by comparatively much lower rates of population growth, witnessed a common decrease in sex-ratio, which varied among the states from only 43 points for W. Bengal to 280 points for Bihar. In the second phase, marked by high and accelerating rates of growth, there was, on the other hand, a general increase in the ratio which was shared by all but three states, the range of variation extending from a decrease of 25 points for Gujarat to an increase of 125 points for W. Bengal. Among the three decades of the second phase, 1941-51 stands out as recording at the national level the largest amount of increase in the ratio; the increase was shared by all states except Madras, the range of variation among the states extending from a decrease of only 1 point for Madras to an increase of 81 points for Punjab, 83 points for Delhi, 111 points for M.P. and 124 points for W. Bengal.

In 1961, inter-state variation in sex ratio of city population extended from 620 in Assam to 958 in Kerala. In the order of importance, eight states, including Delhi, together accounting for 49.9 per cent of the national aggregate of city populations, had sex ratios lower than the one for the aggregate, and the remaining eight had higher sex ratios. At the higher end of the order, we have the southern states and, at the lower end, the eastern states. This geographical contrast is highlighted when we consider the grouping of the states into census zones. The disparity between the zonal and the national sex ratio of city population is the smallest for the central zone; it is small also for the northern zone. For the western zone, the difference is somewhat greater but much smaller as compared to either of the remaining zones. The eastern zone reveals a ratio which is smaller than the national ratio by 128 points and the southern, a ratio larger by 129 points.

Size of Cities

Taking all places classified under urban class I as cities in the 1961 census, we have a set of 113 cities, including 65 "towns" and 48 "town-groups". Only 26 of them were so classified as cities in 1901. In the latter group, we have 23 cities which were retained in Class I in each of the intervening censuses. The remaining three—Gwalior, Baroda, and Surat, had experienced temporary declassification in the earlier decades of the period. Over the period as a whole, there was thus a net addition of 87 new cities. Five of these new

cities—Jamshedpur, Kharagpur, Durg, Dhanbad-Jharia town group and Kurichi—were not represented in the urban population of 1901. The first three were so represented in the urban population for the first time in 1911 and the latter two, in 1921. Jamshedpur, from among them, became a city in 1941, Kharagpur in 1951 and the rest in 1961.

The growth of the aggregate population of these 113 cities was not only continual but had shown a progressive increase in its tempo during the period. The rate of growth had increased from only 4.8 per cent in 1901-11 to a peak of 45.9 per cent in 1941-51 and was 32.7 per cent in 1951-61. The rate of growth for the sub-aggregate of the 26 cities of 1901 had likewise increased from 5.3 per cent in 1901-11 to 48.3 per cent in 1941-51 and was 30.4 per cent in 1951-61. The share of this sub-set in the total volume of decennial increase in the aggregate population of the set was 68 per cent in 1901-11 and 58 per cent in 1951-61. The sub-set accounted for 61.7 per cent of the aggregate population of the set in 1901 and for 61.3 per cent in 1961.

The increasing trend in the population was so continual over the period for as many as 56 of the 113 cities in the set. It was continuous for 21 of the remaining 57 cities from 1911, for 28 from 1921 and for 4 from 1931 onwards. There remain thus only 4 cities in whose case the decrease in population was reported in one of the remaining three decades of the period.

It is notable also that the decrease in population had occurred in only one of the six decades of the period in the case of 36 of these 57 cities, in two decades for 20 cities and in three decades in the remaining one city. We have thus only 79 instances of decennial decrease in the population in a total of 671 decennial variations recorded during the period in respect of the 113 cities in the set. Taking individual decades, it is notable that the decrease was reported for 41 places in 1901-11 and 30 places in 1911-21 but only for 4 places in 1921-31, 3 places in 1941-51 and for 1 place in 1951-61. More outstanding rates of decennial decrease in population were 51 per cent for Mirzapur and 45 per cent for Muzaffarnagar in 1901-11 and 50 per cent for the South Suburban town group in 1921-31.

Considering the two phases of the period separately, we do not come across any instance of decrease for the second phase, while in the course of the first phase the population had decreased in 11 places, including Surat, Gwalior, Varanasi and Jaipur from among

the cities of 1901. The decrease ranged from 1.4 per cent for Udaipur to 27.6 per cent for the South Suburban town group.

Turning to the remaining 596 instances of decennial increase in population, we have some 19 rates exceeding 100 per cent. The more outstanding of these were 911 per cent for Jamshedpur in 1911-21, 558 per cent for the Durg town group in 1951-61, 361 per cent for Warrangal in 1901-11, 346 per cent for Kalyan in 1941-51, 276 per cent for the South Suburban town group and 244 per cent for Kurichi in 1931-41. Comparing the two phases of the period, it is notable that in the second phase some 13 cities had recorded the average decennial rate of increase to be 100 per cent or more as against only one such case of rapid increase reported for the first phase. For the period as a whole, we have 12 places showing the average decennial increase to be 100 per cent or more. As compared to 1901, the population of Kalyan among them was larger in 1961 by 1708 per cent, of Warrangal by 1127 per cent and of Delhi by 1002 per cent.

Alternatively, a review of the volume of decennial variation in population indicates that the amount of decrease in population during a decade was less than 5000 in 40 out of the 79 instances of decrease, less than 10,000 in another 15 instances but more than 25,000 in only 7 of the remaining instances. The decennial decrease amounted at the largest to 96,500 for Hyderabad in 1911-21; it was 54,800 for Gwalior in 1901-11 and 54,800 for Amritsar in 1941-51.

The amount of decennial increase had on the other hand exceeded 1,00,000 in 55 instances, only 4 of which were recorded in the three decades of the first phase; the number of instances of such large increase in population was 12 in 1931-41, 15 in 1941-51 and 22 in 1951-61. By and large, such instances relate to the major cities of India; Bombay, for example; the volume increase in its population had exceeded 100,000 in five of the six decades of the period and for Calcutta, Delhi and Madras it was so in four decades.

For an idea of the contribution of individual cities to the growth of the aggregate population of the 113 places in the set, the order of importance according to the volume of increase between 1901 and 1961 accords the first place to Bombay which accounts for nearly 12 per cent of the aggregate volume of increase between the two dates. In the second position, we have Delhi with 7.6 per cent, followed by Calcutta with 7.1 per cent of the aggregate increase. About a quarter of the aggregate increase is thus claimed by the first

three cities in the order of importance, while the second quarter is shared by 9 cities, the third by 31 cities and the last by the remaining 70 cities.

From census to census there was thus a continual growth of population of cities during the period. Both the average size and the range of size variation reflect this progressive expansion. The range of size variation was 8,29,000 for the sub-set of 26 cities in 1901 and the mean size was 2,39,000; in 1961 the range had enlarged to 40,52,000 for the 113 cities in the set, their mean size being 338,000. For the same 26 cities in the sub-set, the mean size had increased in 1961 to 9,00,000, while the range was 39,03,000. Over the period as a whole, the number of cities had increased from 26 to 113; their mean size, from 2,39,000 to 3,38,000; the range of size variation, from 8,29,000 to 40,52,000 and the coefficient of variation in size, from 87 per cent to 161 per cent. Two of these cities, namely, Bombay and Calcutta, exceeded a million each in population in 1911; Madras, Delhi and Hyderabad were added to the list of million-plus cities in 1951, while Bangalore and Ahmedabad were included in the list in 1961. The next city in the order of importance was Kanpur, whose population according to the census was nearly a million in 1961.

Sex Ratio of Cities

The sex ratio of the aggregate population of the 113 cities in the set recorded over the period a net decrease of 24 points, while the ratio for the aggregate population of the 26 cities in the sub-set had shown a net decrease of 16 points. There was at the same time some reduction in the inter-city variation in sex ratio for both the set and the sub-set. The range of variation for the set had narrowed down from 637 points in 1901 to 519 points in 1961 and for the sub-set, from 527 points to 340 points; the coefficient of variation had decreased between the two dates from around 18 per cent to about 14 per cent for the set and from around 19 per cent to over 13 per cent for the sub-set.

Taking the cities in the set individually, we can derive 671 numbers to represent decennial changes in sex ratio. Among these we have six unusual instances, where the ratio had recorded the same level at the beginning as well as at the end of a decade; this was true of Baroda and Jodhpur in 1901-11, of Mirzapur in 1911-21, of Meerut in 1921-31, of Belgaum in 1931-41 and of Trivandrum

in 1941-51. For the rest, we have 388 instances of decennial decrease and 277 of decennial increase. The decreasing trend predominated in the first three decades and also in 1951-61, while the increasing trend had predominated in 1931-41 and in 1941-51. Over the first phase, there was a decrease in the sex ratio for 98 cities, while over the second, there was an increase in the ratio for 78 cities. Over the period as a whole, there was a net decrease in the ratio for 79 cities and a net increase for 29 cities.

Long persistence of the same trend over time has been observed in a few cases. For Ranchi and Nellore, each of the six decades had recorded a decrease in the ratio, while for Jammu, each decade had shown an increase. The decrease was continual between 1901 and 1951 for Jamnagar, and between 1911 and 1961 for Vellore and Monghyr-Jamalpur, while an increasing trend had continually operated for Kolar Gold Fields and Calicut between 1901 and 1951, and for the Cochin and Ernakulam town group between 1911 and 1961.

The amount of decennial change in sex ratio varied from a decrease of 386 points for the Durg town group in 1951-61 to an increase of 242 points for Asansol in 1941-51. Large decennial changes in the ratio were repeated in a few cases. Among them, we have the two outstanding cases of Gorakhpur recording four such substantial changes and Asansol recording substantial changes thrice during the period. In the former case, the ratio had decreased by 147 points in 1901-11, increased by 105 points in 1921-31, by 148 points in 1931-41, and decreased again by 100 points in 1941-51. In the latter case of Asansol, there was a decrease of 121 points in 1921-31, an increase of 242 points in 1941-51 and a decrease of 183 points in 1951-61.

Net increase exceeded 100 points among the 29 cities recording increase over the period as a whole for three cities and net decrease exceeded in the case of 29 cities. For Kolar Gold Fields, among the former three, the net increase amounted at the maximum to 285 points. More outstanding amounts of net decrease among the latter 29 cities were 244 points for Patna, 211 points for Gorakhpur, and 165 points for Ranchi.

For an idea of the extent to which the net change over the period represented a reduction or an increase in the sex disproportion in the population of individual cities, it is observed that this disproportion had changed in character from an excess to deficiency of

females in 20 cities, while the degree of disproportion had increased for 70 and decreased for 39 cities in the set.

With regard to relationship between changes in the size and sex ratio of cities, there does not obtain any significant correlation. Of the last three decades during which population growth was entirely a general phenomenon, no significant correlation is observed for 1941-51, while for each of the other two decades, it would appear that the higher the rate of growth, the smaller had been the increase or larger the decrease in the sex ratio. Further relating the growth rate to the level of the ratio at the end of the decade, we again notice some correlation for 1931-41 and 1951-61 to indicate that the higher the decennial rate of population growth, the smaller had been the ratio at the end of the decade.

The size variation between the cities being quite extensive, further sub-classification was attempted to examine variation in sex ratio according to size of city. This indicates that the aggregate population of million-plus cities had consistently recorded a much lower sex ratio as compared to that of the aggregate population of smaller cities. The degree of correlation between size and sex ratio of cities appears to have increased during the period when all the cities in the set are considered. No such change had however occurred for the 26 cities in the sub-set, the coefficient of correlation in their case being -0.55 in 1901, -0.53 in 1931 and -0.50 in 1961.

In 1961, the sex ratio of the aggregate population of the 113 cities in the set was 799. While the range of inter-city variation extended from 497 to 1,016, the average fell between 32nd and 33rd of the cities arranged in an ascending order according to the sex ratio. We have thus 32 cities with ratios smaller than the weighted mean for all cities and 81 with higher ratios. We have among them 31 cities with ratios deviating from the mean by more than the size of standard deviation, 14 with lower and 17 with higher ratios. In the former category, we have Calcutta, Howrah, Bombay and Kanpur from amongst the largest cities, and in the latter 17, Trivandrum and Madurai from amongst the better known cities of India. It is interesting to note that these 14 cities account for 43.4 per cent of the aggregate population of cities, while the proportion accounted for by the 17 cities with high sex ratios is only 12.8 per cent.

Age and Sex Composition

In 1961, the city population, as compared to either the total population or its rural and urban segments, exhibited a lower sex ratio for each of the broad age-groups—children below 15, youth between 14 and 35, adults between 35 and 60, and old persons of 60 and above. The difference in the ratio between the total population and city population of India came to as much as 219 points for the youth and 217 points for the adults, while it was only 66 points for the old persons and 29 points for children. In the city population, the sex ratio for the adults was only 655 and for the youth 753, as against 927 for the children and 934 for old persons.

Among the cities in the set, the amount of inter-city variation in sex ratio appears to be the largest for the adults and the least for the children. However, the difference in the amount of inter-city variation was not significantly large among the youth, adults and old persons, the coefficient of variation being 16.6 per cent, 18.8 per cent and 17.2 per cent respectively. For the children, the coefficient was, however, only 4.5 per cent. The lowest ratio for the adults was only 303 for Bhatpara among the cities in the set and it was lower than 500 for 9 other cities. For the youth, the lowest ratio was 386 for Gauhati and it was lower than 500 also for Baly and the Durg town group.

Sex Composition of Migrants

On the basis of the 1961 place-of-birth data, 67 per cent of the total population of India was classified as residents, including all persons born in the place of enumeration, and 33 per cent as migrants, comprising all persons born outside the place of enumeration. The latter group is made up of 21 per cent born in the same district, 7 per cent born in other districts of the same state, 3 per cent born in other states and 2 per cent born abroad. The sex ratio of the migrant group as a whole was 2,084 as against 641 for the residents. Among the migrants, for those born in the same district it was 3,016; for those born in other districts of the state, 1,593; for those born in other states, 862; and for those born abroad, 857.

The migrant group formed a proportion of 45 per cent in the urban population, with a sex ratio of 890 as compared to the resident sex ratio of 810. Here again, the ratio of those born in the same district was 1,209 as against a ratio of 897 for those born in other districts and of 617 for those born in other States. Further, it is notable

that for those, from among these migrants, who were born in rural areas the ratio was 1,000, while for those born in other urban areas it was 851.

The proportion of migrants in the aggregate city population was about the same as in the urban population as a whole. Their sex ratio was, however, only 735 as compared to 855 for the resident population. This can be taken to indicate that the cityward migration is clearly male-selective in contrast to the female selectivity displayed by the migration into non-city urban areas and also the rural areas.

Taking the cities individually, it is observed that the migrant sex ratio was lower than the resident ratio in 45 cities and higher in the remaining 64 cities. Notable instances of large differentials in the former group were 758 points for the Garden Reach town group, 470 points for Bhatpara, 443 points for Baranagar, 402 points for Baly and Calcutta, and 357 points for Bombay. Among the latter 64 cities the differential in favour of the migrant ratio was as high as 1510 points for Aligarh, 841 points for Mirzapur, 669 points for Eluru, 563 points for Warrangal, 417 points for Saharanpur and 404 points for Moradabad.

Sex Composition of the Working Force

The proportion of females in the total working force was 31.5 per cent in 1961 for the country as a whole. It was 34.2 per cent for rural areas and 15.2 per cent for the urban areas. For the city population it was only 10.7 per cent. Alternatively, the participation rate for females was 31.4 per cent as against 58.2 per cent for males for the rural population, 11.1 per cent as against 52.4 per cent for the total urban population and only 8.0 per cent as against 53.3 per cent for the city population.

Among the cities, the proportion of females in the working force varied from only 3 per cent for Howrah to 32.6 per cent for Malegaon. Besides Howrah, the proportion was very low for Kamarhati, Baly, Asansol, Agra and Moradabad. It is comparatively high, besides Malegaon, for Sagar, Warrangal, Kurnool, Salem, Guntur, Mangalore and Palayamcottai.

A comparative distribution of workers according to industry indicates that 80 per cent of the workers in rural population and 70 per cent of the workers in the total population were in agriculture; the corresponding proportions being 10 per cent and 2 per cent for

urban and city populations respectively. The secondary sector, comprising mining, manufacturing and construction activities, accounted for 11 per cent of the workers in the rural population, 35 per cent in the urban and 38 per cent in the city population, while the tertiary and service sectors claimed 60 per cent of the workers in the city population and 55 per cent in the urban population but only 7 per cent in the rural population.

Among the cities, the proportion of the workers in manufacturing varied from only 10 per cent for the Shillong town group to 76 per cent for Malegaon. It is 72 per cent for Bhatpara, 68 per cent for Baly, 66 per cent for Kamarhati, Sholapur and Kolar Gold Fields, 65 per cent for the Durg and Kurichi town groups and 63 per cent for Jamshedpur.

A functional classification of the 113 cities in the set, attempted on the basis of industry-wise distribution of workers, indicates that only 9 of these cities are centres for trade and transport, while service function claimed 47 and industry proper, the remaining 57 cities, 2 of which are mining centres, and 6 show concentration of artisan activities. Calculating sex ratios for the three sub-aggregates of these functional classes it is noted that the ratio for cities classified as trade and transport centres was only 690; for the industrial centres it was 793 and for the service centres, 845. It is notable further that within the group of industrial cities, the combined population of the six artisan centres exhibited a sex ratio of 886.

Sex Composition in Cities in Different Zones

Among the five zones, the contrast between eastern and the southern zone is particularly striking. All the 32 cities of the southern zone had a sex ratio higher than 800 and for as many as 29 of them it exceeded 900. It is in the southern zone that we had the two cities recording excess of females in the population, namely, Palayamcottai and Eluru. The eastern zone, in contrast, claims the bulk of cities with sex ratios below 700, the lowest of which was only 497 for Gauhati. It is also notable that for none of the 23 cities in the eastern zone the sex ratio exceeded 900; the highest ratio among them came to 875 for the town group of Monghyr-Jamalpur. Apart from this, it will be seen that all the cities of the northern zone are concentrated in the interval between 700 and 900; the smallest ratio here was 772 for the Ambala town group and the highest, 887 for Ajmer.

A perusal of the series of sex ratios for the different categories of aggregate population serves to indicate that the southern zone consistently recorded the highest sex ratio; the excess registered by the zone over the corresponding ratio for the all-India population differs rather sharply between the rural and urban population; the rural ratio for the zone exceeded the corresponding all-India ratio by only 32 points but the zonal, urban and city ratios exceeded by 107 and 129 points respectively.

The lowest ratio was claimed by the northern zone in respect of the total population as well as for its rural component. But for the urban and its city components, the lowest values were recorded by the eastern zone. The deviation of the lowest ratio from the all-India ratio came to 61 points in respect of the total population and 68 points for the rural population; for the urban population it amounted to 107 points and for the city population, to 130 points. The deviation of the zonal from the national ratio in respect of the city population was not significantly large for the central and the northern zones. It was somewhat larger for the western zone and larger still for the remaining two zones. The ratio for the eastern zone was smaller than the corresponding national value by 16 per cent, while that of the southern zone was over 16 per cent larger. Comparison between the urban and city population sex ratios indicates that the city ratio was 5.4 per cent smaller than one for the urban population for the country as a whole. This difference again was the least for the southern zone and the most for the western zone, in whose case the city ratio measured only 86.8 per cent of the urban ratio. This difference is significantly large also for the eastern zone.

APPENDIXES

Appendix A. Census Definition of an 'Urban' place

The term 'urban' applies in the census to all places classified as towns, including town groups and cities. The eligibility test applied for classifying a place as town are of two kinds: (A) administrative criteria and (B) urban characteristics.

(A) The administrative criteria have been common to all the censuses, which have treated, regardless of population size, all the places served by the following types of local bodies, as towns:—

- (i) municipal corporation; (ii) municipal area; (iii) town area committee; (iv) notified area committee; and (v) cantonment board.

(B) This part, however, differs from census to census, as indicated below:

1901

"Every other (apart from those covered by A above) continuous collection of houses permanently inhabited by not less than 5,000 persons, which the provincial superintendent may decide to treat as a town for census purposes."

1911

"Every other continuous collection of houses inhabited by not less than 5,000 persons, which the provincial superintendent may decide to treat as a town for census purposes." In addition, a few places, chiefly in the native states not satisfying the above requirements were treated as towns for special purposes. "The provincial superintendents were, however, instructed when considering the question of treating places as towns on the basis of their population, to take care to exclude such as are merely overgrown villages and have no urban features. It is true that the discretion thus allowed has occasionally led to a certain want of uniformity."

1921

"Every other continuous collection of houses inhabited by not less than 5,000 persons, which the provincial superintendent may

decide to treat as a town for census purposes.” In Indian States where there were no municipalities this definition was required to be extensively applied. “In dealing with questions arising (in this respect), the provincial superintendent will have regard to the character of the population, the relative density of the dwellings, the importance of the place as a centre of trade and its historic associations and will bear in mind that it is undesirable to treat as towns overgrown villages which have no urban characteristics.”

1931

“Every other continuous collection of houses inhabited by not less than 5,000 persons, which the provincial superintendent decided to treat as urban.” In making this decision, consideration was given to (a) the character of the population; (b) relative density of the dwellings; (c) importance in trade, historical associations, and to avoid treating as towns overgrown villages without urban characteristics.

1941

“Every continuous collection of houses inhabited by not less than 5,000 persons, which the provincial superintendent may decide to treat as a town.”

1951

Test prescribed for distinguishing towns from villages in different states were based on ideas common to all states, but they were not identical nor had they been applied with meticulous uniformity. In the case of Princely States, the definition of town was applied a little indiscriminately.

1961

Selected places with (a) density of not less than 1,000 per square mile; (b) a population of 5,000; (c) three-fourths of the working population should be working outside agriculture; (d) or any other place, which according to the superintendent of the states, possesses pronounced urban characteristics and amenities.

Appendix B. Basic Census Data

- B.1 Distribution of population by sex, 1901-1961
- +.2 Per cent decennial variation in male and female population of different states, 1901-11 to 1951-61
- B.3 Distribution of population by sex, rural and urban, 1901-1961
- B.4 Per cent variation in rural and urban population in different states, 1901-11 to 1951-61
- B.5 Sex ratios of rural and urban population in different states, 1901 to 1961
- B.6 Distribution of population by sex and size classes of urban population, 1901-61
- B.7 Per cent rates of decennial increase in population by sex for different urban classes, 1901-11 to 1951-61
- B.8 Number of towns in each urban class in states, 1901 and 1961
- B.9 Sex ratios of population in different urban classes in states, 1901 and 1961
- B.10 Size and sex ratio of city population, states, 1901-1961
- B.11 Variation in population of cities between 1901 and 1961
- B.12 Classification of cities of 1961 according to rate of growth of population during a decade and variation in sex ratio during the decades 1901-11 to 1951-61

B. 1 Distribution of population by sex, 1901-1961

Year	(i) Indian Union* (000's)		(ii) 1961 Census Zones *(000's)			
	Male	Female	Northern		Central	
			Male	Female	Male	Female
1901	120,911	117,485	14,385	12,564	33,571	31,915
1911	128,385	123,708	14,281	12,230	34,934	32,659
1921	128,546	122,775	14,322	12,238	34,165	31,677
1931	143,055	135,922	15,931	13,745	36,970	34,163
1941	163,825	154,835	18,647	16,240	41,819	38,703
1951	185,528	175,560	20,299	17,914	46,354	42,933
1961	226,293	212,942	25,544	22,489	55,213	50,906

	Eastern		Western		Southern		Rest	
	Male	Female	Male	Female	Male	Female	Male	Female
1901	29,297	29,591	14,470	14,041	28,926	29,104	262	270
1911	41,402	31,439	15,975	15,322	31,526	31,769	276	279
1921	31,653	31,196	15,942	15,114	32,207	32,279	257	271
1931	35,599	34,421	18,232	17,255	36,044	36,046	279	292
1941	41,480	39,431	20,851	19,724	40,726	40,421	302	316
1951	46,344	43,786	24,843	23,464	47,390	47,134	298	329
1961	58,431	55,162	31,092	29,153	55,671	54,883	342	349

* Sex break-down for Pondicherry in 1901, 1931 and 1941, estimated on the basis of the trend suggested by figures reported for the remaining years.

* Coverage of zones: **Northern:** Jammu-Kashmir, Punjab, Rajasthan, Delhi and Himachal Pradesh; **Central:** Uttar Pradesh and Madhya Pradesh; **Western:** Gujarat, Maharashtra, Dadra and Nagar Haveli; **Eastern:** Bihar, Orissa, West Bengal, Assam, Manipur, Tripura, North-East Frontier Agency, Nagaland and Sikkim; **Southern:** Andhra Pradesh, Mysore, Kerala, Madras, Pondichery and Laccadive, Minicoy and Amindivi Islands; **The Rest:** Andaman and Nicobar Islands, Goa, Daman and Diu.

B.1 (Contd.)

(iii) States and Union Territories

	Andhra Pradesh		Assam		Bihar
	Male	Female	Male	Female	Male
1901	9,607,091	9,458,830	1,920,576	1,792,062	13,295,374
1911	10,769,322	10,687,090	2,248,945	2,084,881	13,855,897
1921	10,749,220	10,671,228	2,703,168	2,454,621	13,955,184
1931	12,183,673	12,019,900	3,269,747	2,895,865	15,725,848
1941	13,782,365	13,506,975	3,926,283	3,477,113	17,624,215
1951	15,670,565	15,444,694	4,705,615	4,125,117	19,491,817
1961	18,161,671	17,821,776	6,328,129	5,544,643	23,301,449

	Bihar	Gujarat		Jammu-Kashmir	
	Female	Male	Female	Male	Female
1901	14,018,826	4,654,875	4,439,873	1,136,766	1,002,596
1911	14,461,019	5,037,852	4,765,735	1,222,305	1,070,230
1921	14,174,024	5,233,462	4,941,527	1,296,205	1,128,154
1931	15,624,044	5,906,646	5,583,182	1,431,801	1,238,407
1941	17,349,931	7,060,352	6,641,199	1,577,021	1,369,707
1951	19,294,367	8,331,922	7,930,735	1,736,827	1,517,025
1961	23,154,161	10,633,902	9,999,448	1,896,633	1,664,343

B. 1 (Contd.)

	Kerala		Madhya Pradesh		Madras
	Male	Female	Male	Female	Male
1901	3,191,466	3,204,796	8,472,749	8,388,019	9,419,398
1911	3,559,425	3,588,248	9,791,291	9,649,674	10,236,951
1921	3,879,458	3,922,669	9,713,414	9,458,336	10,659,489
1931	4,702,951	4,804,099	10,822,587	10,533,070	11,577,988
1941	5,443,296	5,588,245	12,180,012	11,810,596	13,056,967
1951	6,681,901	6,867,217	13,255,004	12,816,633	15,003,724
1961	8,361,927	8,541,788	16,578,204	15,794,204	16,910,978

	Madras	Maharashtra		Mysore	
	Female	Male	Female	Male	Female
1901	9,833,232	9,802,129	9,589,514	6,582,105	6,472,649
1911	10,665,665	10,922,671	10,551,852	6,827,801	6,697,450
1921	10,969,029	10,692,865	10,156,801	6,793,718	6,583,881
1931	11,894,111	12,305,958	11,653,342	7,445,458	7,187,534
1941	13,210,540	13,769,460	13,063,298	8,294,043	7,961,325
1951	15,115,323	16,490,039	15,512,525	9,866,923	9,535,033
1961	16,775,975	20,428,882	19,124,836	12,040,923	11,545,849

B. 1 (Contd.)

	Orissa		Punjab		Rajasthan
	Male	Female	Male	Female	Male
1901	5,058,100	5,244,817	7,178,401	6,087,459	5,403,989
1911	5,535,632	5,843,243	6,611,629	5,333,390	5,756,206
1921	5,350,227	5,808,359	6,846,777	5,618,332	5,429,378
1931	6,042,255	6,448,801	7,468,619	6,198,257	6,160,610
1941	6,706,487	7,061,501	8,702,904	7,398,285	7,274,679
1951	7,242,892	7,403,054	8,681,778	7,453,112	8,313,883
1961	8,770,586	8,778,260	10,891,576	9,415,236	10,564,082

	Rajasthan	Uttar Pradesh		West Bengal	
	Female	Male	Female	Male	Female
1901	4,890,101	25,097,886	23,527,424	8,708,978	8,231,110
1911	5,227,303	25,142,941	23,004,332	9,349,419	8,649,350
1921	4,863,270	24,451,301	22,218,564	9,173,148	8,301,200
1931	5,587,364	26,147,014	23,629,740	9,997,035	8,900,001
1941	6,589,180	29,639,052	26,892,796	12,545,269	10,684,283
1951	7,656,891	33,098,866	30,116,876	14,105,519	12,194,461
1961	9,591,520	38,634,201	35,112,200	18,599,144	16,327,135

B. 1 (Contd.)

	Andaman and Nicobar Islands		Delhi		Himachal Pradesh	
	Male	Female	Male	Female	Male	Female
1901	18,695	5,954	217,921	187,898	447,854	396,416
1911	19,570	6,889	230,865	182,986	460,423	416,139
1921	20,793	6,293	281,777	206,675	468,001	422,045
1931	19,702	9,761	369,497	266,749	500,749	453,527
1941	21,458	12,310	535,236	382,703	557,595	500,116
1951	19,055	11,916	986,538	757,534	579,503	529,963
1961	39,304	24,444	1489,378	1169,234	702,697	648,447

	Laccadive, Minicoy and Amindivi Islands		Manipur		Tripura	
	Male	Female	Male	Female	Male	Female
1901	6,728	7,154	139,632	144,833	92,495	80,830
1911	7,325	7,230	170,666	175,556	121,820	107,793
1921	6,727	6,910	188,119	195,897	161,515	142,922
1931	8,045	7,945	215,815	229,791	202,932	179,518
1941	9,096	9,259	249,183	262,886	272,025	240,985
1951	10,293	10,740	283,685	293,950	335,589	303,440
1961	11,935	12,173	387,058	392,979	591,237	550,768

B. 1 (Contd.)

	Dadra and Nagar Haveli		Goa, Daman and Diu		Pondicherry	
	Male	Female	Male	Female	Male	Female
1901	12,386	11,894	243,439	264,079	119,482	126,872
1911	14,754	14,266	246,842	272,380	124,961	132,218
1921	16,008	15,040	236,088	264,816	118,953	125,203
1931	20,017	18,243	259,381	282,329	126,469	132,159
1941	21,009	19,432	280,175	303,561	139,910	145,071
1951	21,345	20,187	280,141	315,918	156,275	160,978
1961	29,524	28,439	302,534	324,133	183,347	185,732

	N.E.F.A.		Nagaland		Sikkim	
	Male	Female	Male	Female	Male	Female
1901	—	—	51,473	50,077	30,795	28,219
1911	—	—	74,796	74,242	45,059	42,861
1921	—	—	79,738	79,063	41,492	40,229
1931	—	—	89,536	89,308	55,825	53,983
1941	—	—	93,831	95,810	63,289	58,231
1951	—	—	106,551	106,424	72,210	65,515
1961	177,680	158,878	191,027	178,173	85,193	76,996

B 2. Per cent decennial variation in male and female population of different states, 1901-11 to 1951-61

	Andhra Pradesh		Assam		Bihar		Gujarat		Jammu-Kashmir	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
1901-11	12.10	12.89	17.10	16.34	4.22	3.15	8.23	7.34	7.52	6.75
1911-21	-0.19	-0.06	20.20	17.73	0.72	-1.98	3.88	3.69	6.05	5.41
1921-31	13.34	12.64	20.96	17.98	12.69	10.23	12.86	12.98	10.46	9.77
1931-41	13.12	12.37	20.08	20.07	12.07	12.33	19.53	18.95	10.14	10.62
1941-51	13.70	14.35	19.85	18.64	10.60	9.94	18.01	19.42	10.13	10.76
1951-61	15.90	15.39	34.48	34.41	19.54	20.00	27.63	26.08	9.20	9.71

B 2. (Contd.)

	Kerala		Madhya Pradesh		Madras		Maharashtra	
	Male	Female	Male	Female	Male	Female	Male	Female
1901-11	11.53	11.96	15.56	15.04	8.68	8.36	11.43	10.04
1911-21	8.99	9.32	-0.80	1.98	4.43	2.84	-2.10	-3.74
1921-31	21.23	22.47	11.42	11.36	8.62	8.43	15.09	14.73
1931-41	15.74	16.32	12.54	12.13	12.77	11.07	11.89	12.10
1941-51	22.75	22.89	8.83	8.52	14.91	14.42	19.76	18.75
1951-61	25.14	24.39	25.07	23.23	12.71	10.99	23.89	23.29

B.2 (Contd.)

	Mysore		Orissa		Punjab		Rajasthan		Uttar Pradesh		West Bengal	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
1901-11	3.73	3.47	9.44	11.41	-7.90	-12.38	6.52	6.90	0.18	-2.20	7.35	5.08
1911-21	-0.50	-1.70	-3.35	-0.60	3.56	5.34	-5.96	-6.96	-2.75	-3.44	-1.89	-4.03
1921-31	9.59	9.17	12.93	11.03	9.08	10.32	13.47	14.89	6.94	6.35	8.98	7.21
1931-41	11.40	10.77	10.99	9.50	16.53	19.36	18.08	17.93	13.36	13.81	25.49	20.05
1941-51	18.96	19.77	8.00	4.84	-0.24	0.74	14.29	16.20	11.67	11.99	12.44	14.13
1951-61	22.03	21.09	21.09	18.58	25.45	26.33	27.07	25.27	16.27	16.72	31.86	33.89

B. 3 Distribution of population by sex, rural and urban, 1901-1961

(in '000's)

	Urban*		Rural	
	Male	Female	Male	Female
1901	13,536	12,316	107,375	105,169
1911	13,857	12,085	114,528	111,623
1921	15,215	12,871	113,331	109,904
1931	18,201	15,255	124,854	120,667
1941	24,117	20,036	139,708	134,799
1951	33,578	28,866	151,950	146,694
1961	42,789	36,148	183,504	176,794

*Sex break-down for Chandannagar and Gonda, within the urban sector, for 1901 estimated on the basis of trend indicated by the figures for the remaining decades.

B. 4 Per cent variation in Rural and Urban population in different states, 1901-11 to 1951-1961

State	Rural/Urban	1901-11	1911-21	1921-31	1931-41	1941-51	1951-61
A.P.	Rural	11.94	-0.26	11.84	9.83	8.77	15.62
	Urban	17.68	1.03	23.17	36.07	47.86	15.76
Assam	Rural	16.58	18.60	19.22	19.75	17.65	30.16
	Urban	22.91	35.43	30.76	30.50	66.61	122.53
Bihar	Rural	3.90	-1.01	10.99	11.18	8.68	17.65
	Urban	-1.47	8.17	22.00	33.66	38.14	49.03
Gujarat	Rural	12.07	2.63	12.43	14.31	13.34	29.42
	Urban	-7.09	8.67	14.86	38.43	35.83	20.07
J-K	Rural	2.19	6.55	9.08	8.83	9.24	6.12
	Urban	69.15	-0.28	18.19	21.64	18.28	29.77
Kerala	Rural	11.47	7.52	20.64	14.50	19.19	22.40
	Urban	15.44	29.78	34.58	30.47	52.72	39.89
M.P.	Rural	17.78	-2.26	10.45	10.49	6.01	20.95
	Urban	-10.91	10.87	23.03	32.78	33.16	47.70
Madras	Rural	7.42	2.52	5.72	9.63	8.02	8.39
	Urban	15.57	8.86	23.40	22.30	41.75	22.59
Maharashtra	Rural	12.68	-6.77	14.77	8.54	7.72	24.51
	Urban	0.99	18.72	15.54	27.11	62.42	21.32

Mysore.....	Rural	4.79	-3.55	7.43	8.94	10.72	22.56
	Urban	-4.64	17.71	21.65	22.99	61.71	18.26
Orissa	Rural	10.50	-2.04	11.90	9.71	5.21	16.99
	Urban	8.04	2.30	12.70	30.03	44.01	86.79
Punjab	Rural	-9.09	4.01	7.44	15.09	-4.52	24.10
	Urban	-16.46	7.20	27.09	36.07	27.00	33.33
Rajasthan	Rural	8.74	-7.26	13.63	17.25	10.80	29.65
	Urban	-4.83	-0.03	17.21	22.43	39.59	11.04
U.P.	Rural	0.02	-3.50	5.93	12.00	10.25	17.72
	Urban	-8.98	0.61	12.81	26.00	22.93	9.90
W. Bengal	Rural	5.21	-4.43	6.98	15.55	8.27	31.81
	Urban	13.70	7.16	15.01	63.69	32.52	35.96
India	Rural	6.40	-1.29	9.98	11.81	8.79	20.64
	Urban	0.35	8.26	19.12	31.97	41.43	26.41

B. 5 Sex Ratios of Rural and Urban population in different states, 1901-1961

State	Rural/Urban	1901	1911	1921	1931	1941	1951	1961
A.P.	Rural	983	991	994	989	981	985	988
	Urban	999	1,000	986	966	975	987	959
Assam	Rural	943	936	917	897	896	887	895
	Urban	591	642	634	591	617	682	677
Bihar	Rural	1,057	1,048	1,023	1,003	1,006	1,002	1,012
	Urban	997	937	869	813	828	842	811
Gujarat	Rural	951	943	947	948	954	964	956
	Urban	965	960	931	934	898	920	896
J-K	Rural	888	886	879	821	881	882	884
	Urban	809	799	803	784	790	823	844
Kerala	Rural	1,008	1,012	1,016	1,028	1,033	1,033	1,027
	Urban	953	957	958	964	979	992	991
M.P.	Rural	995	991	982	983	980	975	970
	Urban	937	913	878	872	882	907	846
Madras	Rural	1,043	1,044	1,033	1,034	1,017	1,014	1,003
	Urban	1,048	1,032	1,008	997	991	983	963
Maharashtra	Rural	1,003	1,000	994	987	989	1,000	995
	Urban	862	796	776	790	810	807	801

Mysoore	Rural	984	984	975	972	965	974	973
	Urban	976	959	936	927	935	941	913
Orissa	Rural	1,039	1,058	1,089	1,071	1,058	1,029	1,015
	Urban	967	947	963	924	914	881	807
Punjab	Rural	850	812	830	845	867	870	878
	Urban	831	762	746	735	759	812	814
Rajasthan	Rural	898	904	896	908	907	919	913
	Urban	947	936	897	903	897	928	882
U.P.	Rural	940	922	919	917	923	925	924
	Urban	917	853	825	807	805	820	812
W. Bengal	Rural	994	982	971	961	945	939	943
	Urban	652	614	591	578	559	660	701
India	Rural	979	975	970	966	965	965	963
	Urban	910	872	846	838	831	860	845

B. 6: Distribution of population by sex for different size classes of urban population, 1901-61

	I		II		III	
	Male	Female	Male	Female	Male	Female
1901	3,487,207	2,737,343	1,551,552	1,450,793	2,168,670	2,037,584
1911	3,750,121	2,731,944	1,563,414	1,373,384	2,312,776	2,097,518
1921	4,442,879	3,150,348	1,741,681	1,455,720	2,473,629	2,161,927
1931	5,510,615	3,987,824	2,239,720	1,872,061	3,218,605	2,785,021
1941	9,300,793	6,703,556	2,743,723	2,379,243	4,134,014	3,710,299
1951	14,772,106	11,653,840	3,578,756	3,162,207	5,498,215	4,939,910
1961	21,223,162	16,953,745	5,024,158	4,363,273	7,760,591	6,867,416

	IV		V		VI	
	Male	Female	Male	Female	Male	Female
1901	2,853,617	2,761,195	2,646,119	2,561,319	828,292	768,182
1911	2,719,120	2,568,928	2,594,466	2,468,834	926,440	844,688
1921	2,754,326	2,562,533	2,726,270	2,566,566	1,076,174	974,114
1931	3,301,588	3,000,680	2,954,977	2,742,705	975,577	866,616
1941	3,685,003	3,401,941	3,471,550	3,242,872	781,645	698,658
1951	4,497,487	4,205,030	4,189,856	3,965,306	1,041,918	939,303
1961	5,376,225	4,912,444	3,002,696	2,707,029	402,274	343,590

B. 7. Per cent rates of decennial increase or decrease in population by sex for different urban classes, 1901-11 to 1951-61

Class	1901-11		1911-21		1921-31		1931-41		1941-51		1951-61	
	M	F	M	F	M	F	M	F	M	F	M	F
I	7.25	-0.02	18.79	15.32	24.02	26.58	68.78	68.10	58.82	73.85	43.67	45.48
II	0.08	-5.34	11.40	6.00	28.60	28.60	22.50	27.09	30.43	32.91	40.39	37.98
III	6.64	2.94	6.95	3.07	30.12	28.82	28.44	29.63	33.00	36.83	41.15	39.02
IV	-4.71	-6.96	1.29	-0.25	19.87	17.10	11.61	13.37	22.05	23.61	19.54	16.82
V	-1.95	-3.61	5.08	3.96	8.39	6.86	17.48	18.24	20.69	22.28	-28.33	-31.73
VI	11.85	9.96	16.16	15.32	-9.35	-11.04	-19.88	-19.38	33.30	34.44	-61.39	-63.42
All	2.37	-1.88	9.81	6.50	19.63	18.52	32.50	31.35	39.23	44.06	27.43	25.23

B. 8 Number of towns in each urban class in states, 1901 and 1961

	Year	Class of towns ^a						
		I	II	III	IV	V	VI	AII
A. P.	1901	1	—	11	44	60	—	116
	1961	11	8	51	71	70	1	212
Assam	1901	—	—	—	2	7	4	13
	1961	2	1	11	8	23	11	56
Bihar	1901	1	4	9	15	20	5	54
	1961	9	7	28	42	35	5	126
Gujarat	1901	3	2	13	40	60	47	165
	1961	6	10	40	53	58	8	175
J-K	1901	1	—	1	—	—	—	2
	1961	2	—	1	4	5	29	41
Kerala	1901	—	3	4	7	5	—	19
	1961	4	4	25	31	15	—	79
M. P.	1901	1	3	10	23	57	27	121
	1961	8	5	30	55	96	16	210
Madras	1901	3	7	17	55	45	1	128
	1961	11	22	60	96	81	17	287
Maharashtra	1901	3	2	13	56	116	23	213
	1961	13	11	45	85	74	13	241

Mysore	1901	1	3	7	18	74	112	215
	1961	6	9	30	77	57	35	214
Orissa	1901	—	1	3	5	4	1	14
	1961	1	3	8	22	25	3	62
Punjab	1901	1	3	9	25	63	42	143
	1961	5	13	31	36	52	40	177
Rajasthan	1901	1	4	8	26	64	32	135
	1961	6	4	23	52	5	9	145
U. P.	1901	7	11	20	71	164	185	458
	1961	17	16	52	75	74	10	244
W. Bengal	1901	2	1	14	30	20	9	76
	1961	11	23	46	35	27	7	149
All India	1901	26	45	139	417	763	495	1,888
	1961	113	138	484	748	761	218	2,462

B. 9 Sex Ratios of population in different urban classes in states, 1901 and 1961

	Year	I	II	III	IV	V	VI	All
A. P.	1901	931	—	1,034	1,016	1,018	—	999
	1961	942	925	959	970	968	977	959
Assam	1901	—	—	—	540	623	567	591
	1961	620	651	679	767	700	671	677
Bihar	1901	1,011	978	1,032	992	948	1,042	997
	1961	776	854	806	872	850	780	811
Gujarat	1901	902	952	966	996	996	958	965
	1961	813	929	936	934	933	969	896
J-K	1901	871	—	626	—	—	—	809
	1961	842	—	832	853	851	852	844
Kerala	1901	—	900	1,020	964	1,014	—	953
	1961	958	979	1,021	1,024	1,015	—	991
M. P.	1901	869	908	921	942	984	1,001	937
	1961	816	897	864	880	901	903	856
Madras	1901	996	1,088	1,018	1,084	1,080	819	1,048
	1961	929	970	993	997	997	1,032	963
Maharashtra	1901	700	964	928	963	985	956	862
	1961	747	891	900	928	927	920	801

Mysore	1901	962	963	920	991	1003	980	976
	1961	896	906	905	952	933	907	913
Orissa	1901	—	855	961	1073	945	892	967
	1961	722	724	846	828	903	892	807
Punjab	1901	743	746	855	836	887	842	831
	1961	796	787	832	850	840	826	814
Rajasthan	1901	910	915	921	994	962	947	947
	1961	859	853	898	910	908	792	882
U.P.	1901	860	917	913	952	955	915	917
	1961	800	837	825	831	825	508	812
W. Bengal	1901	526	755	817	824	853	785	652
	1961	638	791	771	830	846	781	701
INDIA	1901	785	935	939	967	968	928	910
	1961	799	868	885	914	901	856	845

B. 10: Size and sex ratio of city population states, 1901-1961

States	(i) No. of cities						
	1901	1911	1921	1931	1941	1951	1961
A.P.	1	1	1	1	1	6	11
Assam	—	—	—	—	—	—	2
Bihar	1	1	1	1	4	6	9
Gujarat	3	2	2	2	4	6	6
J-K.	1	1	1	1	1	1	2
Kerala	—	—	—	2	3	4	4
M.P.	1	1	3	3	3	5	8
Madras	3	3	4	5	6	8	11
Maharashtra	3	3	4	4	4	9	13
Mysore	1	1	2	3	4	6	6
Orissa	—	—	—	—	—	1	1
Punjab	1	1	1	1	4	4	5
Rajasthan	1	1	2	2	4	4	6
U.P.	7	7	7	8	12	15	17
W. Bengal	2	2	2	2	4	5	11
Delhi	1	1	1	1	1	1	1
India	26	25	31	36	55	82	113

B. 10 (Contd.)

	(ii) Population of cities						
	1901	1911	1921	1931	1941	1951	1961
A.P.	448,466	502,104	405,630	466,894	739,159	1,762,368	2,676,944
Assam	—	—	—	—	—	—	203,105
Bihar	134,785	136,153	119,976	159,690	569,584	975,240	1,687,335
Gujarat	408,985	331,645	391,441	426,649	1,022,805	1,686,357	2,311,615
J-K	122,618	126,344	141,735	174,459	209,596	250,724	397,822
Kerala	—	—	—	218,817	408,763	666,083	1,002,626
M.P.	138,612	100,651	327,794	393,855	564,526	1,041,584	1,807,349
Madras	751,872	813,262	938,292	1,258,985	1,647,133	2,764,481	3,716,114
Maharashtra	1,143,651	1,309,842	1,728,477	1,904,653	2,551,920	4,971,169	7,250,924
Mysore	161,483	189,485	341,046	541,325	838,870	1,620,840	2,173,169
Orissa	—	—	—	—	—	102,505	146,308
Punjab	162,429	152,756	160,218	264,840	745,315	843,921	1,214,090
Rajasthan	160,167	137,098	233,719	263,703	577,136	785,593	1,241,562
U.P.	1,286,019	1,239,330	1,251,844	1,531,044	2,621,368	3,908,056	5,159,667
W. Bengal	1,091,348	1,195,451	1,248,635	1,446,083	2,812,488	3,609,891	4,828,869
Delhi	214,115	237,944	304,420	447,442	695,686	1,437,134	2,359,408
India	6,224,550	6,472,065	7,593,227	9,498,539	16,004,349	26,425,946	38,176,901

B. 10 (Contd.)

(iii) Index numbers (population size) with 1901=100

	1901	1911	1921	1931	1941	1951	1961
A.P.	100	112	90	104	165	393	597
Assam	—	—	—	—	—	—	—
Bihar	100	101	89	119	423	724	1,252
Gujarat	100	81	96	104	250	412	565
J.K.	100	103	116	143	171	205	324
Kerala	—	—	—	100	187	304	458
M. P.	100	73	237	284	407	751	1,304
Madras	100	103	125	167	219	368	494
Madhya Pradesh	100	114	151	167	223	435	634
Mysore	100	117	211	335	519	1,003	1,346
Orissa	—	—	—	—	—	100	145
Punjab	100	94	99	163	459	520	747
Rajasthan	100	86	116	165	360	490	775
U.P.	100	96	97	119	204	301	401
W. Bengal	100	110	114	132	258	331	442
Delhi	100	111	142	200	325	671	1,102
India	100	104	122	153	257	425	613

(iv) Variation in city population

	1901-11	1911-21	1921-31	1931-41	1941-51	1951-61
A. P.	53,638	-96,474	61,261	272,265	1,023,209	914,576
Assam	—	—	—	—	—	203,105
Bihar	1,368	-16,177	38,714	409,894	405,656	712,095
Gujarat	-77,340	58,796	35,208	596,156	663,552	625,258
J-K	3,726	15,391	32,724	35,137	41,128	142,098
Kerala	—	—	218,817	189,946	257,320	336,543
M. P.	-37,961	227,143	66,061	170,671	477,058	765,765
Madras	61,390	125,030	320,693	388,148	1,117,348	951,633
Maharashtra	166,191	418,635	176,176	647,267	2,419,249	2,279,755
Mysore	28,002	151,561	200,279	297,545	781,970	552,329
Orissa	—	—	—	—	102,505	43,803
Punjab	-9,673	7,462	104,622	480,475	98,606	370,169
Rajasthan	-23,069	96,621	29,984	313,433	208,457	455,969
U.P.	-46,689	12,514	279,200	1,090,324	1,286,688	1,251,611
W. Bengal	104,103	53,184	197,448	1,366,405	797,403	1,218,978
Delhi	23,829	66,476	143,022	248,244	741,448	922,274
India	247,515	1121,162	1,905,212	6,505,910	10,421,597	11,750,961

B. 10 (Contd.)

	(v) Per cent variation in city population						(vi) Per cent distribution of decennial increase in the national aggregate of city populations					
	1901-11	1911-21	1921-31	1931-41	1941-51	1951-61	1901-11	1911-21	1921-31	1931-41	1941-51	1951-61
A.P.	11.9	-19.2	15.1	58.3	138.4	51.9	21.7	-8.6	3.2	4.2	9.8	7.8
Assam	—	—	—	—	—	—	—	—	—	—	—	1.7
Bihar	1.0	-11.9	33.1	256.7	71.2	73.0	0.5	-1.4	2.1	6.3	3.9	6.1
Gujarat	-18.9	18.0	9.0	139.7	64.9	37.1	-31.2	5.3	1.8	9.2	6.4	5.3
J-K	3.0	12.2	23.1	20.1	19.6	58.7	1.5	1.4	1.7	0.5	0.4	1.2
Kerala	—	—	—	86.8	62.9	50.5	—	—	11.5	2.9	2.5	2.9
M.P.	-27.4	225.7	20.2	43.3	84.5	73.5	-15.3	20.3	3.5	2.6	4.6	6.5
Madras	8.2	15.4	34.2	30.8	67.8	34.4	24.8	11.2	16.8	6.0	10.7	8.1
Maharashtra	14.5	32.0	10.2	34.0	94.8	45.9	67.1	37.3	9.2	9.9	23.2	19.4
Mysore	17.3	80.0	58.7	55.0	93.2	34.1	11.3	13.5	10.5	4.6	7.5	4.7
Orissa	—	—	—	—	—	42.7	—	—	—	—	1.0	0.4
Punjab	-6.0	4.9	65.3	181.4	13.2	43.9	-3.9	0.7	5.5	7.4	1.0	3.1
Rajasthan	-14.4	70.5	12.8	118.9	36.1	58.0	-9.3	8.6	1.6	4.8	2.0	3.8
U.P.	-3.6	1.0	22.3	71.2	49.1	32.0	-18.9	1.1	14.7	16.8	12.3	10.7
W. Bengal	9.5	4.5	15.8	94.5	28.3	33.8	42.1	4.7	10.4	21.0	7.6	10.4
Delhi	11.1	27.9	47.0	55.5	106.6	66.2	9.6	5.9	7.5	3.8	7.1	7.9
India	4.0	17.3	25.1	68.5	65.1	44.5	100.0	100.0	100.0	100.0	100.0	100.0

	(vii) Per cent distribution of aggregate city population							(viii) Percentage of city population in total urban population						
	1901	1911	1921	1931	1941	1951	1961	1901	1911	1921	1931	1941	1951	1961
A.P.	7.2	7.8	5.3	5.0	4.6	6.7	7.0	24.4	23.2	18.5	17.3	20.2	32.5	42.7
Assam	—	—	—	—	—	—	0.5	—	—	—	—	—	—	22.3
Bihar	2.2	2.1	1.6	1.7	3.6	3.7	4.4	12.3	12.6	10.3	11.2	28.9	37.1	43.1
Gujarat	6.6	5.1	5.2	4.5	6.4	6.4	6.1	20.1	17.6	19.1	18.1	31.4	38.1	43.5
J-K	2.0	2.0	1.9	1.8	1.3	0.9	1.0	77.2	47.1	52.9	54.9	54.2	54.8	67.1
Kerala	—	—	—	2.3	2.6	2.5	2.6	—	—	—	23.9	34.2	36.5	39.3
M.P.	2.2	1.6	4.3	4.1	3.5	3.9	4.7	9.5	7.8	22.8	22.2	24.0	33.2	39.1
Madras	12.1	12.6	12.4	13.2	10.3	10.5	9.7	27.6	25.8	27.4	29.8	31.8	37.7	41.3
Maharashtra	18.4	20.2	22.8	20.1	15.9	18.8	19.0	35.6	39.1	43.0	40.3	41.6	50.4	65.0
Mysore	2.6	2.9	4.5	5.7	5.2	6.1	5.7	9.9	12.1	18.5	24.2	30.5	36.4	41.3
Orissa	—	—	—	—	—	0.4	0.4	—	—	—	—	—	17.3	13.2
Punjab	2.6	2.4	2.1	2.8	4.7	3.2	3.2	10.4	11.7	11.5	14.9	30.9	27.5	29.7
Rajasthan	2.6	2.1	3.1	2.8	3.6	3.0	3.3	10.3	9.3	15.8	15.3	27.3	26.6	37.8
U.P.	20.6	19.1	16.5	16.1	16.4	14.8	13.5	23.9	25.3	25.4	27.5	37.4	45.2	54.4
W. Bengal	17.5	18.5	16.5	15.2	17.6	13.7	12.7	52.8	45.8	43.8	40.1	58.1	57.5	56.5
Delhi	3.4	2.7	4.0	4.7	4.3	5.4	6.2	100.0	100.0	100.0	100.0	100.0	100.0	100.0
India	100.0	100.0	100.0	100.0	100.0	100.0	100.0	22.9	24.2	25.3	27.4	35.4	41.8	48.4

B. 10 (Contd.)

	(ix) Percentage of city population in total population										(x) Sex ratios				
	1901	1911	1921	1931	1941	1951	1961	1901	1911	1921	1931	1941	1951	1961	
A.P.	2.4	2.3	1.9	1.9	2.7	5.7	7.4	931	937	936	886	921	983	942	
Assam	—	—	—	—	—	—	1.7	—	—	—	—	—	—	620	
Bihar	0.5	0.5	0.4	0.5	1.6	2.5	3.6	1,011	922	824	731	770	826	776	
Gujarat	4.5	3.5	3.8	3.7	7.5	10.4	11.2	902	874	803	838	774	834	813	
J-K	5.7	5.5	5.9	6.5	7.1	7.7	11.2	871	848	850	826	839	853	842	
Kerala	—	—	—	2.3	3.7	4.9	5.9	—	—	—	919	944	952	958	
M.P.	0.8	0.5	1.7	1.8	2.4	4.0	5.6	869	796	770	771	776	867	816	
Madras	3.9	3.9	4.3	5.4	6.3	9.2	11.0	996	964	946	941	944	943	929	
Maharashtra	5.9	6.1	8.3	8.0	9.5	15.5	18.3	700	610	613	649	681	705	747	
Mysore	1.2	1.4	2.6	3.7	5.2	8.5	9.2	962	938	897	898	906	916	896	
Orissa	—	—	—	—	—	0.7	0.8	—	—	—	—	—	755	722	
Punjab	1.2	1.3	1.3	1.9	4.6	5.2	6.0	743	719	685	666	697	774	794	
Rajasthan	1.6	1.3	2.3	2.2	4.2	4.9	6.2	910	935	771	832	897	897	859	
U.P.	2.6	2.6	2.7	3.1	4.6	6.2	7.7	860	809	765	756	750	786	798	
W. Bengal	6.5	6.6	7.2	7.7	12.1	13.7	13.8	526	502	492	483	476	600	638	
Delhi	52.8	57.5	62.3	70.3	75.8	82.4	88.7	817	740	672	670	677	754	777	
India	2.6	2.6	3.0	3.4	5.0	7.3	8.7	785	730	709	724	721	789	799	

	(xi) Change in sex ratio during each decade (No. of points)						(xii) Sex ratios as relatives of S.R. of total urban population (=100)							
	1901 -11	1911 -21	1921 -31	1931 -41	1941 -51	1951 -61	1901	1911	1921	1931	1941	1951	1961	
A.P.	+6	-1	-50	+35	-62	-41	93.2	93.7	94.9	91.7	94.5	99.6	98.3	
Assam	—	—	—	—	—	—	—	—	—	—	—	—	91.6	
Bihar	-89	-98	-93	+39	+56	-50	101.4	98.4	94.8	89.9	93.0	98.1	97.6	
Gujarat	-28	-71	+35	-64	+60	-21	93.5	91.0	86.3	89.7	86.2	90.7	90.7	
J-K	-23	+2	-24	+13	+14	-11	107.7	106.1	105.9	105.4	106.2	103.6	99.8	
Kerala	—	—	—	+25	+8	+6	—	—	—	—	—	—	96.7	
M.P.	-73	-26	+1	+5	+91	-51	92.7	87.2	87.7	88.4	96.4	96.0	95.3	
Madras	-32	-18	-5	+3	-1	-14	95.0	93.4	93.8	94.4	95.3	95.6	96.5	
Maharashtra	-90	+3	+36	+32	+24	+42	81.2	76.6	79.0	82.2	84.1	87.4	93.3	
Mysore	-24	-41	+1	+8	+10	-20	98.6	97.8	95.8	96.9	96.9	97.3	98.1	
Orissa	—	—	—	—	—	-33	—	—	—	—	—	—	89.5	
Punjab	-24	-34	-19	+31	+77	+20	89.4	94.4	91.8	90.6	91.8	95.3	97.8	
Rajasthan	+25	-164	+61	+17	+48	-38	96.1	99.9	86.0	92.1	94.6	96.7	97.4	
U.P.	-51	-44	-9	-6	+36	+12	93.8	94.8	92.7	93.7	93.2	95.9	98.3	
W. Bengal	-24	-10	-9	-7	+124	+38	80.7	81.8	83.2	83.6	85.2	90.9	91.0	
Delhi	-77	-68	-2	+7	+77	+23	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
India	-55	-21	+15	-3	+68	+10	86.3	83.7	83.8	86.4	86.8	91.7	94.5	

B. 10 (Contd.)

	(xiii) Sex ratios of city population as relatives of sex ratio of total population (=100)							(xiv) Sex ratios of city population in state as relatives of sex ratio of aggregate city population (=100)						
	1901	1911	1921	1931	1941	1951	1961	1901	1911	1921	1931	1941	1951	1961
A.P.	94.5	94.5	94.3	89.8	94.0	99.7	96.0	119	128	132	122	128	125	118
Assam	—	—	—	—	—	—	70.8	—	—	—	—	—	—	78
Bihar	95.9	88.3	81.1	73.5	77.3	83.4	78.1	129	126	116	101	107	105	97
Gujarat	94.5	92.4	85.1	88.7	82.3	87.6	86.5	115	120	113	116	107	102	102
J-K	98.8	96.8	97.7	95.5	96.5	97.7	95.9	111	116	120	114	116	108	105
Kerala	—	—	—	89.9	91.9	92.6	93.7	—	—	—	127	131	121	120
M.P.	87.8	80.7	79.1	79.2	80.0	89.7	85.6	111	109	109	106	108	110	102
Madras	95.4	92.5	91.9	91.6	93.3	93.6	93.6	127	132	113	130	131	119	116
Maharashtra	71.6	63.1	64.5	68.5	71.8	74.9	79.8	89	84	87	90	95	86	94
Mysore	97.9	95.6	92.6	93.1	94.4	94.8	93.4	122	129	127	124	126	116	112
Orissa	—	—	—	—	—	73.9	72.1	—	—	—	—	—	96	90
Punjab	87.6	89.1	83.4	80.2	82.0	90.2	92.1	101	99	97	92	97	98	100
Rajasthan	100.6	103.0	86.0	91.7	93.7	97.4	94.6	116	128	109	115	118	114	108
U.P.	91.8	88.4	84.2	83.6	82.7	86.4	87.8	110	111	108	104	105	100	100
W. Bengal	55.7	54.3	54.4	54.3	55.9	69.4	72.7	67	69	69	67	66	76	80
Delhi	94.8	93.3	91.7	92.8	91.7	98.2	99.0	104	101	95	92	94	96	97
India	80.8	75.7	74.2	76.2	75.6	83.4	81.9	100	100	100	100	100	100	100

B. 10 (Contd.)

(xv) Index numbers for sex ratios of city population (1901 = 100)

	1901	1911	1921	1931	1941	1951	1961
A.P.	100	101	101	95	99	106	101
Assam	—	—	—	—	—	—	100
Bihar	100	91	82	72	76	82	77
Gujarat	100	97	82	93	86	92	90
J-K	100	97	98	95	96	98	97
Kerala	—	—	—	100	103	104	104
M.P.	100	92	89	89	89	100	94
Madras	100	97	95	94	95	95	93
Maharashtra	100	87	88	93	97	101	107
Mysore	100	98	93	93	94	95	93
Orissa	—	—	—	—	—	100	96
Punjab	100	97	92	90	94	104	107
Rajasthan	100	103	85	91	93	99	94
U.P.	100	94	89	88	87	91	93
W. Bengal	100	95	94	92	90	114	121
Delhi	100	91	82	82	83	92	95
India	100	93	90	92	92	101	102

B. 11 Variation in population of cities between 1901 and 1961.

Name	Population		Variation		% of aggregate variation	Cumulative %
	1961	1901	Persons	%		
1	2	3	4	5	6	7
Bombay	4,152,056	812,912	3,339,144	411	11.89	11.89
Delhi	2,359,408	214,115	2,145,293	1002	7.64	19.53
Calcutta	2,927,289	933,754	1,993,535	213	7.10	26.63
Madras	1,729,141	541,167	1,187,974	218	4.23	30.86
Bangalore	1,206,961	161,483	1,045,478	647	3.72	34.58
Ahmedabad	1,206,001	185,889	1,020,112	549	3.63	38.21
Hyderabad	1,251,119	448,446	802,653	179	2.86	41.07
Kanpur	971,062	202,797	768,265	379	2.73	43.80
Poona	737,426	164,117	573,309	349	2.04	45.84
Nagpur	690,302	166,622	523,680	314	1.86	47.70
Lucknow	655,673	256,239	399,434	156	1.42	49.12
Howrah	572,598	157,594	355,004	225	1.26	50.38
Jamshedpur	328,044	—	328,044	—	1.17	51.55
Agra	508,680	188,082	320,658	171	1.14	52.69

Madurai	424,810	105,984	318,826	301	1.14	53.83
Indore	394,941	97,804	297,137	304	1.06	54.89
South suburban	314,712	54,585	287,127	526	1.02	55.91
Jabalpur	367,014	90,316	276,698	306	0.98	56.89
Varanasi	489,864	215,223	274,641	128	0.98	57.87
Sholapur	337,583	75,288	262,295	348	0.93	58.80
Alahabad	430,730	172,032	258,698	154	0.92	59.72
Cochin-Ernakulam	313,030	61,236	251,794	411	0.90	60.62
Trivandrum	302,214	57,882	244,332	422	0.87	61.49
Jaipur	403,444	160,167	243,277	152	0.87	62.36
Amritsar	398,047	162,429	235,225	145	0.84	63.20
Coimbatore	286,305	53,080	233,225	439	0.83	64.03
Patna	364,594	134,785	229,809	171	0.82	64.85
Vijayawada	230,397	24,224	206,173	851	0.73	65.58
Dhanbad-Jharia	200,618	—	200,618	—	0.71	66.29
Jullundur	265,030	67,735	197,295	291	0.70	66.99
Ludhiana	244,032	48,649	195,383	402	0.70	67.69
Baroda	298,398	103,790	194,608	187	0.69	68.38
Nasik	215,576	24,384	191,192	784	0.68	69.06

B. 11 (Contd.)

1	2	3	4	5	6	7
Mysore	253,865	68,111	185,754	273	0.66	69.72
Kalyan	194,334	10,749	183,585	1708	0.65	70.37
Salem	249,145	70,621	178,524	253	0.64	71.01
Stinagar	295,084	122,618	172,466	141	0.61	71.62
Calicut	248,548	76,981	171,567	223	0.61	72.23
Surat	288,026	119,306	168,720	141	0.60	72.83
Hubli-Dharwar	248,489	81,143	167,346	206	0.60	73.43
Meerut	283,997	118,539	165,458	140	0.59	74.02
Gwalior	300,587	138,612	161,975	117	0.58	74.60
Rajkot	194,145	36,151	157,994	437	0.56	75.16
Ajmer	231,240	73,839	157,401	213	0.56	75.72
Guntur	187,122	30,833	156,289	507	0.56	76.28
Asansol	168,689	14,906	153,783	1032	0.55	76.83
Kharagpur	147,253	—	147,253	—	0.53	77.36
Bhopal	222,948	77,023	145,925	189	0.52	77.88
Jodhpur	224,760	79,109	145,651	187	0.52	78.40

Warrangal	156,106	10,487	145,619	1,389	0.52	78.92
Tiruchirappally	249,862	104,721	145,141	139	0.52	79.44
Vishakhapatnam	182,004	40,892	141,112	345	0.50	79.94
Bareilly	272,829	133,167	139,661	105	0.50	80.44
Kolhapur	193,186	54,373	138,813	255	0.49	80.93
Durg	133,230	—	133,230	—	0.47	81.40
Mangalore	170,253	44,108	126,145	286	0.45	81.85
Bhatpara	147,630	21,540	126,090	585	0.45	82.30
Dehradun	156,341	30,995	125,346	404	0.45	82.75
Bhavnagar	176,473	56,442	120,031	213	0.43	83.18
Kurichi	119,380	—	119,380	—	0.42	83.60
Saharanpur	185,213	66,254	118,959	180	0.42	84.02
Moradabad	191,828	75,042	116,746	155	0.41	84.43
Gorakhpur	180,255	64,148	116,107	181	0.41	84.84
Ranchi	140,253	25,970	114,283	440	0.41	85.25
Jhansi	169,712	55,724	113,988	205	0.40	85.65
Alleppey	138,834	24,918	113,916	457	0.40	86.05
Aligarh	185,020	72,084	112,936	155	0.40	86.45
Kamarhati	125,457	13,216	112,241	849	0.40	86.85

B.11 (Contd.)

1	2	3	4	5	6	7
Baly	130,896	18,662	112,234	601	0.40	87.25
Palayamcottai	190,048	80,014	110,034	137	0.39	87.64
Kolar Gold Fields	146,811	38,244	108,607	284	0.39	88.03
Raipur	139,792	32,114	107,678	335	0.38	88.41
Belgaum	146,790	42,131	104,659	284	0.37	88.78
Ujjain	144,161	39,892	104,269	261	0.37	89.15
Ambala	181,747	78,638	103,109	131	0.37	89.52
Malegaon	121,408	19,054	102,354	537	0.36	89.88
South Dumdum	111,284	10,904	100,380	921	0.36	90.24
Tuticorin	127,356	28,048	99,308	354	0.35	90.59
Amravati	137,875	39,511	98,364	249	0.35	90.94
Bikaner	150,634	53,075	97,559	195	0.35	91.29
Monghyr-Jamalpur	146,807	49,809	96,998	195	0.34	91.63
Cuttack	146,308	51,364	94,944	185	0.34	91.97
Jannagar	148,572	53,844	94,728	176	0.33	92.30
Rajahmundry	130,002	36,408	93,594	257	0.33	92.63

Thana	109,215	16,011	93,204	582	0.33	92.96
Shillong	102,398	9,621	92,777	964	0.33	93.29
Sangli	127,183	35,254	91,929	261	0.33	93.62
Gauhati	100,707	11,661	89,046	764	0.32	93.94
Kota	120,345	33,657	86,688	258	0.31	94.25
Akola	115,760	29,289	86,471	295	0.31	94.56
Ahmednagar	119,020	35,784	83,236	233	0.30	94.86
Baranagar	107,837	25,432	82,405	324	0.29	95.15
Nagercoil	106,207	25,782	80,425	312	0.29	95.44
Gaya	151,105	71,288	79,817	112	0.28	95.72
Vellore	122,761	43,537	79,224	182	0.28	96.00
Kurnool	100,815	25,376	75,439	297	0.27	96.27
Eluru	108,321	33,521	74,800	223	0.27	96.54
Kakinada	122,865	48,096	74,769	155	0.27	96.81
Nellore	106,776	32,040	74,736	223	0.27	97.08
Burdwan	108,224	35,022	73,202	209	0.26	97.34
Patiala	125,234	53,545	71,689	134	0.25	97.59
Bhagalpur	143,850	75,760	68,090	90	0.24	97.83
Jammu	102,738	36,130	66,608	184	0.24	98.07

B. 11 (Contd.)

1	2	3	4	5	6	7
Mathura	125,258	60,042	65,216	109	0.23	98.30
Udaipur	111,139	45,976	65,163	142	0.23	98.53
Muzaffarpur	109,048	45,617	63,431	139	0.23	98.76
Sagar	104,676	42,330	62,346	147	0.22	98.98
Bandar	101,417	39,507	61,910	157	0.22	99.20
Rampur	135,407	78,758	56,649	72	0.20	99.40
Thanjavur	111,099	57,870	53,229	92	0.19	99.59
Shahjahanpur	117,702	76,458	41,244	54	0.15	99.74
Darbhanga	103,016	66,244	36,772	56	0.13	99.87
Mirzapur	100,097	66,071	34,026	52	0.13	100.00

R. 12. Classification of cities of 1961 according to rate of growth of population during a decade and variation in sex ratio (in terms of points) during the decades 1901-11 to 1951-61

	Variation in sex ratio (points)	Rate of growth of population										Increase	100+	All
		50-99	25-49	10-24	0-9	0-9	10-24	25-49	50-99	100+	All			
1901-11	100+	---	---	---	---	---	---	---	---	---	---	---	---	---
	50-99	---	---	---	2	---	---	1	---	---	---	---	---	---
	0-49	---	---	3	3	9	4	2	---	---	---	---	---	---
	Nil	---	---	---	1	---	---	---	---	---	---	---	---	---
	100+	---	---	---	---	---	---	---	---	---	---	---	---	---
	50-99	---	---	---	8	11	10	9	---	---	---	---	---	---
	0-49	1	5	1	9	5	5	3	---	---	---	---	---	---
	100+	---	---	1	---	---	1	1	---	---	---	---	---	---
	All	1	6	11	23	29	20	16	---	---	---	---	---	---
1911-21	100+	---	---	---	---	---	---	---	---	---	---	---	---	---
	50-99	---	---	---	---	---	---	2	---	---	---	---	---	---
	0-49	---	---	---	5	5	4	1	1	---	---	---	---	---
	Nil	---	---	---	---	---	---	---	---	---	---	---	---	---
	100+	---	---	---	---	---	---	---	---	---	---	---	---	---
	50-99	---	1	3	13	19	15	11	2	---	---	---	---	---
	0-49	---	---	4	4	4	5	4	---	---	---	---	---	---
	100+	---	---	---	---	---	2	2	1	---	---	---	---	---
	All	---	1	7	22	28	26	20	6	1	---	---	---	---

Variation in sex ratio (points)	Rate of growth of population									
	Decrease					Increase				
	50-99	25-49	10-24	0-9	0-9	0-9	10-24	25-49	50-99	100+
1921-31										
Increase										
100+	1	—	—	—	—	1	1	1	—	4
50-99	—	—	—	—	—	2	1	2	—	6
0-49	—	—	—	1	1	2	15	7	1	26
0-49	—	—	1	1	1	1	19	29	2	53
50-99	—	—	—	—	—	1	8	11	2	26
100+	—	—	—	—	—	—	1	1	1	3
All	1	—	1	2	2	7	46	51	4	113
1931-41										
Increase										
100+	—	—	—	—	—	—	1	1	—	2
50-99	—	—	—	—	—	—	2	10	2	14
0-49	—	—	—	—	—	2	20	26	7	57
Nil	—	—	—	—	—	—	—	1	—	1
0-49	—	—	—	—	—	—	11	16	5	32
50-99	—	—	—	—	—	—	—	4	1	5
100+	—	—	—	—	—	—	—	—	1	2
All	—	—	—	—	—	2	34	58	16	113

1941-51

Increase

100+	--	--	--	1	--	2	4	3	1	11
50-99	--	--	1	1	--	3	15	6	2	29
0-49	--	--	--	--	1	5	29	10	2	47
Nil	--	--	--	--	--	--	1	--	--	1

Decrease

0-49	--	--	--	--	--	4	12	6	1	24
50-99	--	--	--	--	--	--	2	--	--	2
100+	--	--	--	--	--	--	1	--	--	1
All	--	--	1	2	1	14	64	25	6	113

1951-61

Increase

100+	--	--	--	--	--	--	--	--	--	--
50-99	--	--	--	--	1	1	2	1	--	5
0-49	--	--	--	--	2	12	12	6	2	34

Decrease

0-49	--	--	--	1	1	20	28	8	--	58
50-99	--	--	--	--	1	3	5	2	2	13
100+	--	--	--	--	--	--	--	1	2	3
All	--	--	--	1	5	36	47	18	6	113

LIST OF TABLES

1. Growth of the national population and variation in its sex ratio, 1901-61	3
2. Sex ratios of selected countries	5
3. Per cent variation in population by zones, 1901-61	6
4. Per cent distribution of population by zones, 1901-61	8
5. Difference in per cent rates of growth between male and female population, 1901-61	8
6. Variation in sex ratios in zonal populations, 1901-61	9
7. Deviation of zonal sex ratios from the sex ratio of national population, 1901-61	11
8. Growth of states' populations and change in their relative shares in National population between 1901 and 1961	12
9. Per cent decennial variation of population in states	14
10. Sex ratios of the states' populations, 1901-61	16
11. State sex ratio relatives (sex ratio of national population=100)	19
12. Variation in male, female and total population in rural and urban areas, 1901-61	22
13. Variation in sex ratio—rural and urban populations, 1901-61	26
14. Per cent decennial variation in urban proportion in different states, 1901-61	28
15. Percentage of population in urban areas for different states	29
16. States arranged according to urban proportion in 1901 and 1961	30
17. Comparative inter-state variation in rural and urban sex ratios, 1901-61	32
18. Difference between rural and urban sex ratios, (no. of points), for individual states, 1901-61 (Rural—Urban)	33
19. Change between 1901 and 1961 in urban proportion and rural-urban sex ratios in states showing correlation between the two	36
20. Female proportion in decennial increments to urban population, 1921-61	38
21. State urban sex ratio relatives (with all India urban sex ratio=100) 1901-61	39
22. Growth in different size classes of towns, 1901-61	42
23. Sex ratios of population in different urban classes, 1901-61	45
24. Relatives of sex ratios of population in different urban classes (with the sex ratio of total urban population=100) 1901-61	48
25. 1961 population in urban classes as per cent of the corresponding population of 1901	50
26. Per cent distribution of increase between 1901 and 1961 in urban population in each state by urban classes	52
27. Percentage of urban population in classes I, II and III by states, 1901-61	54
28. Sex ratios of effective-urban and quasi-urban population in states, 1901, 1941, 1951, 1961	58
29. 1961 sex ratios of urban classes expressed as percentages of the sex ratio of urban sector in individual states	61

30. Size and sex ratio of city population in India, 1901-61	64
31. Growth of city population in states, 1901-31 and 1931-61	67
32. Per cent distribution of city population in India by states, 1901, 1931 and 1961	69
33. City population as per cent (i) of urban and (ii) of total population in each state, 1901, 1931 and 1961	71
34. Sex ratios of city populations in states, 1901-61	73
35. Per cent variations in size and sex ratio of city population in states between 1901 and 1961	76
36. Variation of sex ratio relatives for states, 1901-61	77
37. City S.R. as a percentage of (i) urban S.R. and (ii) total S.R. for states in 1901, 1931 and 1961	78
38. Variation in city S.R. relatives of (i) urban S.R. and (ii) total S.R.	79
39. Size and S.R. of city populations in states, 1961	82
40. Size and S.R. of city population in census zones, 1961	84
41. Variation in aggregate population of cities, 1901-61	88
42. Size classification of the towns and town groups classified as cities in 1961, for the previous census years of the period	90
43. Variation in aggregate population of the 26 cities of 1901 and of the 113 cities of 1961	92
44. Distribution of places classified as cities in 1961 according to per cent rate of decennial growth in population, 1901-11 to 1951-61	94
45. Inter-city variation in per cent rate of decennial growth	98
46. Inter-city variation in the volume of population growth in each decade	99
47. Distribution of places classified as cities in 1961 according to volume of decennial variation in their population	101
48. Distribution of the cities of 1961 and those of 1901 according to average volume of growth per decade for the period and its two phases	102
49. Inter-city variation in the size of population, 1901-61	106
50. Distribution of cities of each year according to size of population	109
51. Percentage of aggregate city population in the million-plus cities of 1961	110
52. Sex ratios of the aggregate city populations, 1901-61	113
53. Inter-city variation in sex ratio, 1901-61	116
54. Frequency distribution of cities according to the level of sex ratio 1901, 1931 and 1961	118
55. Distribution of cities according to direction of change in the sex ratio, 1901-11 to 1951-61	120
56. Distribution of cities, classified by the direction of net change in the sex ratio, according to the number of decennial increases therein	122
57. Distribution of cities according to the amount of decennial change in sex ratio	125
58. Distribution of cities according to amount of changes in sex ratio for the period and its two phases	127
59. Distribution of cities according to initial level of sex ratio and amount of change therein for (A) 1901-31, (B) 1931-61, and (C) 1901-61	134

60. Distribution of cities according to initial level of sex ratio and change in its deviation from unity, 1901-31, 1931-61 and 1901-61	137
61. Direction of change in sex ratio of cities classified according to decennial increase or decrease in population	140
62. Distribution of cities according to rate of growth of population and change in sex ratio during the decade	141
63. Distribution of cities according to per cent rate of growth and variation in sex ratio of population—1901-61	143
64. List of variations in sex ratio resulting from sex differential direction of change in the size of population	145
65. Distribution of cities according to sex ratio of decennial variation in population	145
66. Distribution of cities according to volume of population growth between 1901 and 1961 and its female proportion	150
67. Distribution of cities according to the sex ratio of initial population and of the population added during a decade, 1931-41, 1941-51 and 1951-61	152
68. Sex ratio of population of cities classified by size	154
69. Distribution of cities in different size classes according to sex ratio	155
70. Correlation between the size and sex ratio of cities	156
71. Per cent distribution of population by sex and broad age-groups	159
72. Distribution of cities according to proportion of children and youth	162
73. Sex ratios for broad age-groups	163
74. Distribution of cities in the two broad size categories according to sex ratio of each individual age-group	165
75. Inter-city variation in sex ratio of individual age-groups	166
76. Cities distributed according to percentage deviation of sex ratio of an age-group from the ratio of the total population	167
77. Distribution of cities according to proportion of the rural in total migrants	170
78. Sex ratios of the different categories of rural and urban population, classified by place of birth, 1961	171
79. Distribution of cities according to sex ratio of resident and migrant population	173
80. Inter-city variation in sex ratios of total resident and migrant population	174
81. Distribution of cities according to the difference between the resident and migrant population sex ratios (resident—migrant)	175
82. Proportion of workers in the aggregate national, rural, urban and city population	177
83. Distribution of cities according to female proportion (i) in total population and (ii) in the working force (females in thousand persons)	178
84. Inter-city variation in working force participation rates	179
85. Distribution of cities according to sex ratio and working force participation rate	180
86. Percentage distribution of workers according to industry	181
87. Inter-city variation in proportion of non-agricultural working force in different sectors	183

88. Distribution of cities according to the proportion of manufacturing other than household industry, in the total number of workers in the secondary sector	184
39. Functional classification of cities and their distribution according to sex-ratio	186
90. Inter-zone differences in the size of city population	189
91. Inter-zone differences in the sex ratio of city population	191

INDEX

- AGE-GROUPS, 158-168
 Agra, 145, 176, 179
 Ahmedabad, 103, 110, 111, 124,
 131, 148, 185
 Ajmer, 132, 144, 145, 185, 190
 Aligarh, 4, 145, 169, 176
 Allahabad, 131, 145
 Alleppey, 149
 Ambala, 145
 Amravati, 182
 Amritsar, 95, 100, 130, 131, 148
 Andaman Nicobar islands, 4
 Andhra Pradesh, 12, 16, 19, 28, 50,
 58, 61, 67, 78, 79
 Argentina, 5
 Artisan industry—functional classi-
 fication of cities, 189
 Asansol, 96, 124, 126, 132,
 148, 179, 185
 Assam, 12, 16, 19, 28, 36, 50, 58,
 61, 67, 78, 82
 Australia, 5

 BALI, 130, 145, 151, 161, 162, 167.
 169, 176, 179, 183, 185, 187
 Bandar, 130, 182
 Bangalore, 96, 103, 110, 111, 124, 149
 Baranagar, 176, 185
 Barcilly, 104, 112, 145, 146, 149, 187
 Baroda, 87, 112, 121, 161
 Belgaum, 121, 161
 Bhagalpur, 145, 185
 Bhatpara, 103, 130, 132, 151, 167,
 168, 176, 183, 185, 187
 Bhilaiagar, 91, 96
 Bhopal, 129, 170
 Bihar, 12, 16, 19, 28, 50, 58, 61, 67,
 73, 78, 79, 82
 Bikaner, 95, 169
 Bombay, 101, 103, 104, 109-11,
 145, 146, 157, 176,
 Brazil, 4

 Burdwan, 130, 145, 183
 Burma, 4

 CALCUTTA, 101, 103, 104, 110, 111,
 123, 130, 131, 149, 150, 151, 157,
 176, 182, 185, 187
 Canada, 5
 Census zones, 4-11, 187-92
 Central Zone, 84
 China, 4, 5
 Cochin-Ernakulam, 111, 123, 132, 183
 Columbia, 5
 Congo, 5
 Czechoslovakia, 5

 DARBHANGA, 138, 139, 150, 170
 Dehra Dun, 124, 126, 129, 132, 145,
 148, 153, 183
 Delhi, 67, 78, 79, 82, 101, 103, 104,
 110, 111, 113, 131, 185
 Dhanbad-Jharia, 90, 96, 185
 Durg, 90, 96, 97, 124, 126, 130, 132,
 135, 153, 167-169, 183, 187

 EASTERN ZONE, 84, 190
 Eluru, 138, 139, 160, 161, 167, 176, 190

 FRANCE, 5

 GARDEN REACH TOWN GROUP, 176, 188
 Gauhati, 91, 149, 151, 166, 167, 183,
 187, 190
 Gaya, 130, 170
 Germany, East, 5
 Germany, West, 5
 Goa, Daman & Diu, 5
 Gorakhpur, 126, 130, 132, 146, 183,
 185
 Gujarat, 12, 16, 19, 28, 36, 50, 58,
 61, 67, 78, 79, 82
 Guntur, 167, 170, 179
 Gwalior, 87, 95, 100, 104, 112, 149

HOUSEHOLD INDUSTRY—functional
classification of cities, 185

Ihowrah, 148-150, 157, 179

Hubli-Dharwar, 161, 162

Hungary, 5

Hyderabad, 100, 103, 110, 111, 149,
185

INDONESIA, 5

Indore, 100, 104, 111, 130

Industry—functional classification of
cities, 186, 187

Iran, 5

Italy, 5

JABALPUR, 87, 132

Jaipur, 95, 146

Jammu, 123, 130, 144, 145, 183

Jammu and Kashmir, 12, 16, 19,
28, 50, 58, 61, 67, 78, 79, 82

Jamnagar, 123, 166

Jamshedpur, 90, 96, 97, 104, 111,
130, 183

Japan, 5

Jhansi, 145

Jodhpur, 121

Jullundur, 145

KAKINADA, 146

Kalyan, 91, 96, 97

Kamarhati, 130, 179, 183, 185

Kanpur, 103, 157

Kerala, 12, 16, 19, 28, 36, 50, 58,
61, 66, 67, 68, 82

Kharagpur, 90, 132, 185

Kolar Gold Fields, 95, 123, 124,
126, 129, 133, 146, 149, 167, 182-85

Kolhapur, 182

Koica, 5

Kurichi Town Group, 90, 96, 97,
182, 183

Kurnool, 179

LUCKNOW, 129

Ludhiana, 111, 131, 145

MADHYA PRADESH, 12, 16, 19, 28,
50, 58, 61, 67, 78, 79, 82

Madras, 12, 16, 19, 28, 36, 50,
58, 61, 78, 79, 82, 101, 103, 110,
111, 148, 149, 185

Madurai, 124, 149, 150

Maharashtra, 12, 16, 19, 28, 50,
58, 61, 78, 79, 82

Malegaon, 145, 179, 183

Mangalore, 149, 167, 168, 179

Marriage Migration, 172

Mathura, 145, 183

Mecrut, 121, 145

Mexico, 5

Migrant Population, 168-176

Mirzapur, 95, 100, 104, 121, 138,
161, 176

Monghyr-Jamalpur, 123, 190

Moradabad, 166, 169, 170, 176, 179

Morocco, 4

Muzaffarpur, 95, 129, 183, 187

Mysore, 12, 16, 19, 28, 50, 58, 61,
67, 78, 79, 82, 149, 153

NAGERCOIL, 138, 139, 153, 185

Nagpur, 100

Nasik, 126, 145

Nellore, 123, 138, 139

Netherlands, 5

New Delhi, 169

Nigeria, 5

Northern Zone, 84, 190

ORISSA, 12, 16, 19, 28, 36, 50, 58,
61, 67, 78, 82

PAKISTAN, 4, 5

Palayam Kottai, 138, 139,
160, 179, 185, 190

Patiala, 130, 144, 145

Patna, 124, 129, 138, 139, 145, 146,
150

Peru, 5

Philippines, 5

Poland, 5

Punjab, 12, 16, 19, 28, 50, 58, 61,
67, 78, 79, 82

RAILWAY TRANSPORT—functional
classification of cities, 186

Raipur, 187

Rajahmundry, 160, 167
 Rajasthan, 12, 16, 19, 28, 50, 58,
 61, 67, 78, 79, 82
 Rampur, 93, 144, 145, 161
 Ranchi, 123, 141
 Romania, 5

SAGAR TOWN GROUP, 179, 185
 Saharanpur, 145, 146, 176, 187
 Salem, 131, 179, 185
 Sangli, 182
 Service—functional classification of
 cities, 183
 Shahjahanpur, 95, 138, 139, 144, 145,
 150, 183
 Shillong, 183
 Sholapur, 113, 183
 South Africa, 5
 South Dum Dum, 127, 132
 South Suburban Town Group, 95,
 97, 100, 103, 104, 111, 127, 132, 145
 Southern Zone, 84, 190
 Spain, 5
 Srinagar, 112, 169, 176
 States, 11-20, 27-40, 48-85
 Surat, 87, 95, 102, 111

TAIWAN, 5
 Thailand, 5
 Thana, 121, 146
 Thanjavur, 145, 153
 Tiruchirapally, 104, 112, 124, 131, 149

Trade—functional classification of
 cities, 186, 187
 Trivandrum, 121, 132, 157, 183
 Turkey, 5

U.A.R., 5
 U.K., 5
 U.S.A., 5
 U.S.S.R., 5
 Udaipur, 95, 129
 Ujjain, 145
 Ukraine, S.S.R., 4, 5
 Ulhasnagar, 169, 170
 Union Territories, 12
 Urbanization, 27-30
 Uttar Pradesh, 12, 16, 19, 28, 49,
 50, 58, 61, 67, 78, 79, 82

VARANASI, 111, 131, 145, 185
 Vellore, 123, 138, 139, 145
 Vietnam, North, 5
 Vijaywada, 187
 Vishakhapatnam, 183

WARRANGAL, 96, 97, 138, 176, 179
 West Bengal, 12, 16, 19, 28, 36, 50,
 58, 61, 67, 74, 78, 79, 82
 West Zone, 84
 Working force—sex composition,
 176-187

YUGOSLAVIA, 5